State of Utah
GARY R. HERBERT
Governor

SPENCER J. COX
Lieutenant Governor

Department of
Environmental Quality

Alan Matheson
Executive Director

DIVISION OF WATER QUALITY
Erica Gaddis, PhD
Director

FILE COPY

DWQ-2018-000668
blj

JAN 2 6 2018

CERTIFIED MAIL
(Return Receipt Requested)

Rod Garner
Miller Brothers Express, LLC
560 West 400 North
Hyrum, UT 84319

Subject: Public Notice of Nutrient Management Plan for Miller Brothers Express Feedlot, UPDES General CAFO Permit UTG080100

Dear Mr. Garner:

Enclosed is a copy of the feedlot's NMP for public notice for permit issuance. Public notice of a CAFO's NMP is required prior to CAFO permit issuance. The public notice allows comments from the public on the NMP for at least 30 days. If significant comments are received, DWQ may need to require the feedlot to change the NMP, based on significant comments, if any. This information will also be made available on-line at, **http://www.waterquality.utah.gov/info/notices.htm**

If you have any questions with regards to this matter, please contact Don Hall at (801) 536-4492.

Sincerely,

Jeanne Riley, Manager
UPDES Storm Water Section

JR/DH/blj

Enclosures (4):
1. Public Notice (DWQ-2018-000667)
2. Nutrient Management Plan (DWQ-2018-000670)
3. Nutrient Management Plan – Redaction 1 (DWQ-2017-000666)
4. Notice of Intent (DWQ-2018-000672)

cc: Amy Clark., EPA Region VIII, via email w/enclosure
Grant Koford, Bear River Health Department, via email w/o enclosure
Jay Olsen, Utah Department of Agriculture, via email w/o enclosure

DWQ-2018-000668

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DIVISION OF WATER QUALITY (DWQ)
UTAH DEPARTMENT OF ENVIRONMENTAL QUALITY
PUBLIC NOTICE OF NUTRIENT MANAGEMENT PLAN (NMP) WITH INTENT TO ISSUE A UPDES GENERAL CAFO PERMIT TO MILLER BROTHERS EXPRESS

PURPOSE OF PUBLIC NOTICE

The purpose of this public notice is to declare the state of Utah's intention to issue a Utah Pollutant Discharge Elimination System (UDPES) General Concentrated Animal Feeding Operation (CAFO) Permit to Miller Brothers Express under authority of the Utah Water Quality Act. As required by the Clean Water Act, a site-specific NMP for a CAFO must be public noticed prior to permit issuance. Certain NMP conditions are permit requirements, therefore the NMP must be public noticed as part of the permit. If no changes are made to the NMP following the comment period, then DWQ intends to issue the CAFO Permit to Miller Brothers Express, LLC feedlot.

PERMIT INFORMATION

PERMIT:	UPDES CAFO GENERAL PERMIT, PERMIT NO. UTG080100
PERMITTEE NAME:	Miller Brothers Express, LLC
FACILITY ADDRESS:	560 West 400 North, Hyrum, UT 84319
RECEIVING WATER:	Spring Creek

BACKGROUND

Miller Brothers Express feedlot is a large CAFO that has discharged to waters of the State and therefore is required to obtain the UPDES CAFO Permit. A Natural Resources Conservation Service (NRCS) certified planner has approved the nutrient management plan for compliance with NRCS standard practices. In addition, DWQ has approved the NMP for compliance with the CAFO permit requirements. During the public comment period, the public has opportunity to provide comment on the NMP and the potential permitting of Miller Brothers feedlot in Hyrum, Utah.

PUBLIC COMMENTS

Public comments are invited any time prior to the deadline, close of business on ***March 2, 2018***. Written public comments can be submitted to: Don Hall, Storm Water Section, Utah Division of Water Quality, P.O. Box 144870, Salt Lake City, Utah 84114-4870 or by email at: dghall@utah.gov. After considering public comment DWQ may execute the permit issuance, revise it, or abandon it. The permit and associated documents are available for public review at, http://deq.utah.gov/NewsNotices/notices/water/index.htm. If internet access is not available, a copy may be obtained by calling Don Hall at 801-536-4492.

DWQ-2018-000667

Nutrient Management Plan (NMP)

Miller Brothers Express, LLC

Hyrum, Utah
January 17, 2018

Farm/Facility: Farm Name: **Miller Brothers Express, LLC**
560 West 400 North
Hyrum, Utah 84319

[redacted]

Owner/Operator: Kris Miller

Latitude/Longitude: 41 38' 41.12 N; 111d 52'28.83 W

Hydrologic Unit: 16010103

Receiving Water: Spring Creek

Plan Period: 2017 through 2021

Certified Conservation Planner

I certify that I am a Natural Resources Conservation Service (NRCS) approved certified planner qualified to review and approve nutrient management plans (NMPS) for compliance with NRCS NMP planning practices and NRCS standard practices. I certify that the NMP developed for the facility submitting this NOI for permit coverage complies with Parts VII, VIII, IX, XI and XII of the CAFO permit and all applicable NRCS practice standards, including Practice 590 and UMARI. The NMP, if fully implemented, will be in accordance with all NMP permit requirements and all applicable NRCS practice standards for the facility.

I approve the nutrient management plan for the facility seeking permit coverage under this NOI.

Signature: _____ Date: January 22, 2018 ____

Name: Howard R. Thomas` Certification Credentials: Utah NRCS Certified Planner

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Hyrum, Utah
January 17, 2018

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I approve the nutrient management plan for the facility seeking permit coverage under this NOI.

Signature: _____ Date: _____

Name: _____ Certification Credentials: Utah NRCS Certified Planner

Owner/Operator Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment for knowing violations.

Signature: _____ Date: _____

Name: _____

Table of Contents

List of tables and Maps

Section 1. Background and Site information

1.1 General Description of Operation

Miller brothers express Feed Yard and composting facility is located in Hyrum, Utah. Farmable acreage includes approximately 910 acres of owned land and 80 acres of rented cropland.

The climate of Cache Valley is semi-arid with 18.45 inches of rainfall on average each year. Irrigation is required for normal crop production as the majority of rainfall occurs in the winter months of October through March (9.98 inches on average). Weather extremes include highs over 100 degrees F and sub-zero temperatures in the winter. The normal growing season is 170 to 180 days although frosts can occur in every month.

The operations of the Miller Brothers Express feed yard and composting facility consists of maintaining healthy beef feeders for resale and slaughter, processing animal waste into compost, keeping well-managed facilities, raising field crops for animal feed and using nutrient resource management to minimize environmental impacts.

Miller brothers Express feed yard feeds yearling cattle for the beef market. Market prices influence the amount of cattle kept at the facility for feeding and sale. A composting facility processes animal solid animal waste from their feeding facility and other sources to produce fertilizer and other amendments for agricultural and commercial sale for gardens and lawns.

The total number of animals on site varies but averaged around 1436 in 2016 [one animal unit equals 1,000 pounds of animal weight]. The animals in the feed yard average about 800 pounds each.

Food rations are nutritionally balanced to achieve optimum growth rates. Animals are closely monitored for health, treated for sickness and vaccinated for disease prevention at the farm. Animal mortalities are taken to the local county land fill

The feeders at the Miller Bros Express feed yard are confined in pens throughout the year. The cattle are kept in open lot pens. Each animal has access to, free choice feed and water. All pens have a concrete floor. There are 32 pens for feeders which are divided by weight and size. Straw is used for bedding during the wet winter months and when temperatures drop below freezing. Straw is used whenever it rains or snows with about 700 tons of straw used in a normal year.

The open lot pens are cleaned on a regular basis and hauled by truck to the composting facility where it is used in composted fertilizer and soil amendments for commercial sale. Liquids are piped from the ponds at the west end of the pens to a series of four liquid storage ponds. The first pond is a 3-acre pond used for storing excess winter runoff. The levels in this pond are regulated using a pump to move water into the other three ponds. The level in the evaporation/storage pond is not to exceed 2 feet in depth and must not have water stored more than 90 days during the year. Liquids are managed from the storage ponds through a pipe to a 125-acre field where excess water is discharged through risers

and hoses in a field application. The NRCS field assessment tool (UMARI) was used to determine that field application could be made on this field during frozen or snow covered conditions.

To ensure adequate management options for handling liquid and solid manure waste, Miller Bros Express operates about 880 acres available for manure application on an as needed basis. Most of the nutrients for these fields are from commercial sources as the demand for mulch and other products from the composting facility consumes most of the manure output from the feed lot.

1.2 Crops and Manure Application

Grass, alfalfa, small grains and corn silage are commonly grown on Miller Bros Express ground. Miller Bros feed yard uses best management practices (BMP's) for the implementation of crop production.

Alfalfa is normally planted for a five-year crop rotation. Three to four crops of alfalfa are typically harvested each year. Corn and small grains are rotated with the alfalfa allowing manure to be spread on land during rotation to annual crops. Soil samples will be used to monitor nitrogen and phosphorus levels so that a nutrient balance can be achieved. Because composting is being used as a best management practice to utilize the solid waste from the facility manure application to cropland is limited to the waste water from the waste storage ponds. Soil tests will determine the level of application needed to maintain crop growth and nutrient levels in the soil within the guidelines of the NRCS Practice 590.

The crops are flood and sprinkler irrigated. Fields north of the lagoon use wastewater applied by flood irrigation, there are 80 acres. MBEX have installed an additional irrigation line to connect the waste lagoon to a center pivot on 125 acres north of the Road. This allows the producer increased management options for distributing liquid waste. The plants utilize the nutrients from the animal waste and use it for plant growth. Additional commercial fertilizer is also added (according to but not exceeding soil sample recommendations) to the crops to achieve optimum forage yields. A nutrient balance is achieved through a planned crop rotation. Because nitrogen and phosphorus are the limiting factors in applying animal waste, soil and manure samples are analyzed and calculated for use in the nutrient balance.

Animal waste solids are taken to the composting facility and composted for sale. This process helps minimize negative effects of the nutrients to the environment, but also leaves the option for land application of the animal waste.

Utilization of nutrients in the applied animal waste is accomplished through compost sales. The objective is to incorporate all nutrients in the form of crop harvest or compost sales. Sampling guidelines will be followed, ensuring accurate and representative samples to obtain correct data. Annual testing and soil monitoring will assess the current use of organic and commercial fertilizers and provides guidance for future fertilization practices.

Soil, waste, and water monitoring practices will be used to achieve production goals while minimizing environmental impact.

Section 2. Resource Concerns and Management

2.1 Soil Quality concerns

There are no Soil quality concerns as long as the soil fertilization and drainage are properly applied and maintained.

Table 1, Environmental Concerns

Soil Quality Concern	Activities to Address Concern
Ephemeral Gully Erosion	Not a concern
Gully Erosion	Not a concern
Sheet and Rill Erosion	Not a concern
Stream/Ditch bank Erosion	Not a concern
Wind Erosion	Plant cover crops after corn harvest
Nutrient Management	Follow recommendations of NMP and Practice #590
Acres Available for Manure Application	989 acres of cropland

2.2 Water Quality Concerns

There is a Large amount of waste generated at the site. The potential for spillage into the canals and streams in the area depends on the construction, maintenance and management of a complex waste management system. Making sure this system is working is of paramount importance in the prevention of water quality contamination. The present concern is that the drainage pipe underlying the large shallow pond draws contaminated water through the drainage pipe to the canal north of the roadway along the north side of the field immediately north of the shallow pond. MBEX has made a temporary modification of the system to control this runoff and will complete the closure of the drains under the pond in the dry season.

There is a potential concern with the distribution of waste water through the three lagoons and eventually to the fields in the North-West corner of the property where the pivot is located. Dykes and berms along the canal on the north end of the property are to be maintained and checked periodically. Portable lines are used at the outlets to distribute this waste water across the field with cross ditches implemented in the fall to enhance areal distribution across the field and increase infiltration of waste water. A cover crop should be planted on those fields used for water disposal for uptake of nutrients applied in waste water.

NRCS estimated the required size of the ponds to contain the waters from the feedlot and determined that there is sufficient storage capacity when the ponds are emptied during the fall months before the winter storage season begins the first of November. The four lagoons should be emptied prior to November 1 of each year. Any modifications necessary to remove water from the lagoons in a timely manner will need to be implemented by the deadline for compliance with the DWQ stipulated compliance letter dated June 5, 2017.

Table 2 Water quality Concerns

Water Quality Concern	Activities to address Concern
Facility Waste Water Runoff	Maintain dikes and ditches to prevent run on.
Manure Runoff (Field Application)	Maintain dikes and winter dams to prevent runoff into streams
Manure Runoff Production Area	Maintain existing ditches and enclosures
Nutrients in Ground Water	Maintain integrity of pond dykes and do not disturb sealed bottoms
Nutrients in Surface Water	Utilize ponds and other water control structures to control waste water and prevent runoff.
Silage Leachate	Divert leachate to waste water control system.
Fields with Excess Nutrients	Check soil tests to determine application
Tile Drained Fields	Incorporate manure into soil to limit seepage into drain fields
Run-on	Maintain dikes and ditches to prevent run on

2.3 Maps of Areas of Concern

Map 1 Application fields with dyke delineated.

Figure 1

There are no imminent areas of concern for this facility. The issues relate to easier managemen t of waste materials for the convenience of the operator during high rain fall events and winter storage concerns

Section 3. Production Area Effluent and Management

3.1 Production Area Maps

Map 2 Production areas showing feed lot and storage ponds.

3.2 Generation, Storage and Transfer of Manure and Wastewater (VII.B, IX.A.1.)

The feeders at the Miller Bros Express feed yard are confined in pens throughout the year. The cattle are kept in open lot pens. Each animal has access to, free choice feed and water. All pens have a concrete floor. There are 32 pens for feeders which are divided by weight and size. Straw is used for bedding during the wet winter months and when temperatures drop below freezing. Straw is used whenever it rains or snows with about 700 tons of straw used in a normal year.

The open lot pens are cleaned on a regular basis and hauled by truck to the composting facility where it is used in composted fertilizer and soil amendments for commercial sale. Liquids are piped from the ponds at the west end of the pens to a series of three liquid storage ponds. Liquids are managed from

the storage ponds through a pipe to a 125 acre field where excess water is discharged through risers and hoses in a field application. The NRCS field assessment tool (UMARI) was used to determine that field application could be made on this field during frozen or snow covered conditions.

The actual amount of waste generated will vary depending on breed, and animal weight. The yearly accumulated waste totals approximately 354,379 ft3. Solid wastes are managed through the composting facility owned by the company. There are no specific provisions in the plan for applying solid animal waste because all solid manure will be composted and sold commercially. The composting facility purchases solids from local sources to augment the amount available for sale. Periodically the company will haul manure to a field when the soil tests indicate a need for manure application. This application will conform with NRCS Practice 590.

Currently the animal waste collection is achieved by scraping the corrals as needed. In dry hot weather the waste has lower moisture content decreasing the number of times needed to gather the waste and remove it from the pens to the composting facility. During cooler, wetter periods of the year, the cleaning process becomes more frequent.

Current animal waste storage for the Miller Bros. Express feed yard is accomplished by using the composting pad for solids and a set of four lagoons for liquids. The large liquid lagoon is allowed to fill to approximately 20 inches. The pump is then activated to move the liquid to the top of the three ponds adjacent to the large liquid lagoon. As these ponds fill the water is released through a closed pipe system to an irrigation mainline north of the canal and road below the facility. This water is then carried via the pipeline to the 130-acre field at the northwest corner of the property. This field has been diked to prevent outflow to the canal on the north side of the cropland owned by MBEX. All of the waste water from the feeding operation and the composting facility is controlled through pipes to the large lagoon.

Each corral is cleaned on a regular basis and bedding is used as needed during inclement weather. Storm water will be managed in the corral and monitored daily to properly manage in-coral storage to maintain animal health and utilize the ponds at the west end to regulate flows to the lagoons. All bedding, is processed through the composting facility and sold.

The accumulated solid animal waste is treated by composting. The animal waste is currently transferred to the composting facility by large trucks.

Utilization of nutrients in the applied animal waste is accomplished through compost sales. The objective is to incorporate all nutrients in the form of crop harvest or compost sales. Sampling guidelines will be followed, ensuring accurate and representative samples to obtain correct data. Annual testing and soil monitoring will assess the current use of organic and commercial fertilizers and provides guidance for future fertilization practices.

Soil, waste, and water monitoring practices will be used to achieve production goals while minimizing environmental impact.

Manure storage

Table 3 Manure dry storage

Storage ID	Type of Storage	Pumpable or Spreadable Capacity	Annual Manure Collected	Maximum Days of Storage	Storage Period
Pens	In corral bedding		3500	240	Winter
Composting facility	Commercial Composting		7637	365	All year

With the dry storage available on site with the composting facility there will be no requirement for dry stack storage on the Miller Feedlot facility.

Waste Water Storage

Table 4 Liquid manure storage

Storage ID	Type of Storage	Pumpable or Spreadable Capacity (Gallons)	Annual Manure Collected	Maximum Days of Storage	Storage Period
West end Pond	Feedlot runoff containment	320,532		150	3 months
Evaporation pond	Will be removed and leveled				
South Lagoon	Waste water storage	829,719		150	4 Months
Middle Lagoon	Waste water storage	2,371,001		150	4 Months
North Lagoon	Waste water storage	1,055,914		150	6 Months
Total capacity		4,577,166		240	5 months

Compost storage is on site but operated independently, therefore the capacity of the composting facility is not a concern for MBEX. The composting facility accepts manure from other facilities and has sufficient capacity to handle all of the manure produced at MBEX.

NRCS ran the Ag. Waste Management program to determine the amount of capacity needed to handle the runoff and storage capacities for the feedlot and composting facility. The required capacity is 2,158,830. The current capacity of the five waste-water holding facilities is, 4,577,166 or over two times the required capacity.

This includes storage for the 25-year storm but may not be enough for extreme chronic events as occurred in 2005 and 2016-17. However, these chronic events are covered in the case of a facility having a permit to discharge. Therefore, the current storage capacity exceeds the requirements for waste water storage.

Management of these facilities require that they be emptied or nearly emptied before the winter holding season begins in November of each year.

3.3 Animal Mortality Management (IX.A.2.)

a. Mortality management and disposal shall be according to NRCS practices and any applicable state, county, or local requirements.

b. Properly dispose of dead animals in a timely manner. Animals shall be disposed of in a manner to prevent contamination of surface waters of the state or creation of a public health hazard.

Dead Animal Management:

Dead animals are hauled to the Cache County Land fill.
Composting of mortalities, blood, and animal by-products requires approval from the Division of Solid and Hazardous Waste (DSHW). Please contact DSHW at (801) 536-0211 for more detail on animal composting requirements.

In the case of a mass mortality event, the State Veterinarians Office (801) 538-7162 will be called and dead animals will be removed to the county land fill for disposal. Always contact the state veterinarian's office at (801) 538-7162 in case of catastrophic death loss.

3.4 Clean Water Diversion (IX.A.3.)

Clean water is diverted at the top of the production area by a canal and drain along the roadway South of the facility.

3.5 Direct Animal Contact with Surface Water (IX.A.4.)

There is no direct animal contact with surface water as all animals are confined year around.

3.6 Chemical Handling (IX.A.5.)

Chemicals and other contaminants such as: animal dips, pesticides, cleaning and disinfection agents, foot bath chemicals, pharmaceuticals, fertilizers, fuel, oil, cooling water, etc. are to be contained in secure containers until proper disposal at landfill or hazardous waste facility.

Ensure that chemicals and other contaminants handled on-site are not disposed of in any manure, storm water, or process wastewater storage system unless specifically designed to treat such chemicals and other contaminants. Receptacles for chemical waste must be conveniently located and maintained to secure waste for disposal at the landfill or hazardous waste facility.

Resulting from the normal operation of the CAFO, only manure, litter, compost, process wastewater, and precipitation are allowed in storage and retention structures.

Section 4. Nutrient Application and Land Management (VII.D, XII.C.)

4.1 Land Conservation and Application Practices

Identify site-specific conservation practices that will be implemented, including as appropriate, buffers or equivalent practices, to control runoff of pollutants to surface water. Such practices shall include, but are not limited to: (which practices and BMPs apply to the facility, please list and describe)

a. Solid manure shall be incorporated as soon as possible after application, unless the application site has perennial vegetation (such as alfalfa) or is no-till cropped, and where the nutrient management plan adequately demonstrates that surface water quality will be protected where manure is not immediately incorporated.
b. Process wastewater to furrow or flood-irrigated land application sites shall be applied in a manner that prevents any process wastewater runoff into surface waters of the state. Cross furrows will be implemented to increase infiltration of waste water in the fields during inclement weather applications.
c. When process wastewater is flood, sprinkler, or drip applied, the soil water holding capacity of the soil shall not be exceeded.
d. Process wastewater shall not be applied to frozen, snow covered, or saturated land application sites unless according to NRCS practice 590, Utah Manure Application Risk Index (UMARI) or other NRCS practices.
e. Where applicable of the following, the greatest setback distance of land applied manure and process wastewater applies:
   1. 100 feet (or 35-foot vegetated buffer as appropriate) of surface waters of the state.
   2. 100 feet of domestic water supply wells,
   3. setbacks or vegetative buffers established through UMARI or other NRCS practices,
   4. setbacks otherwise required by UAC R309-600, as it pertains to drinking water source protection.

4.2 Land Application Methods (IX.A.8.)

Establish protocols to land-apply-manure or process wastewater in accordance with site specific nutrient management practices that ensure appropriate agricultural utilization of the nutrients in the manure or process wastewater. Such protocols shall include, but are not limited to:

a. Compliance to NRCS Practice 590, Nutrient Management, January 2013. The facility uses a North American Proficiency Testing (NAPT) certified laboratory for all soil testing. The Laboratory ensures compliance with NRCS and EPA protocols and guidelines
b. In association with Practice 590, USU guidelines and protocols must be followed. The feedlot uses third party soil testing services that are approved by the North American Proficiency Testing (NAPT) certified laboratory. No application of manure or process wastewater shall be made to a land application site at a rate that will exceed the capacity of the soil and the agronomic nutrient uptake of the planned crops and

yields. Manure and wastewater shall be applied to useful crops. Manure shall not be applied to bare ground or other areas where a crop will not be harvested for 12 months or more following the application.

c. Manure and process wastewater shall be applied as uniformly as possible with properly calibrated equipment. Any feed runoff, pen or corral runoff, or other process wastewater applications to fields shall be evenly distributed throughout the field.
d. Operators must inspect annually, and calibrate as needed, any equipment used for land application of manure, litter, compost, or process wastewater.
e. Direct land application of mortalities, blood, animal by-products, waste feed, or other products or materials is prohibited unless the nutrient applications are accounted for in the NMP and DWQ approves the NMP which includes such specific applications.

Manure spreader operators shall be trained to follow setback requirements as outlined in the permit language.

Land application of manure will be based on the following table:

Table 5, Land Application Guide

Soil Test Phosphorus (ppm)	Apply Based on
Phosphorus < 50 ppm	Spread based on nitrogen needs
Phosphorus 50 -100 ppm	Spread based on phosphorus needs
Phosphorus 100 - 120 ppm	50% of crop phosphorus needs
Phosphorus > 120 ppm	No application of manure

Utilization: On fields with soil test levels less than 50 ppm Soil Test Phosphorus (STP), solid manure can be land-applied based on crop nitrogen needs in years when corn is grown in the crop rotation. On fields with soil test levels between 50 and 100 ppm Soil Test Phosphorus (STP), solid manure will be land-applied based on crop phosphorus needs for the crop rotation. In this case, commercial nitrogen fertilizer may need to be used to maximize crop production and to facilitate crop removal of phosphorus. Nitrogen additions will be based on soil test recommendations as outlined in the Utah Fertilizer Guide.

Liquid manure and storm water runoff will be applied based on soil and manure testing and NRCS Irrigation Water Management and Nutrient Management guidelines. Liquids from the lagoon will be pumped to adjacent fields through a pipeline or by using large liquid manure spreaders. All the liquid can be safely used on the 989 acres available along with the majority of the solid waste. Approximately 25 percent of the solids will be composted and used for bedding. Annual soil tests and crop production needs will determine the amount of solid manure applied to each field.

4.3 Calibration of Application Equipment (IX.A.8.)

Spreader Calibration: Several methods are available for spreader calibration. To calibrate the solid manure spreader, first load and weigh the contents of the spreader or weigh a 5-gallon bucket of manure and multiply the weight x 1.5 x length x width x height of the spreader. This will give you tons per load of manure. To calibrate liquid/slurry spreaders, first determine the volume of material in gallons from manufacturer specifications or multiply the length x width x height of the spreader x 7.5. For volume in cylindrical tanks, multiply length x width x height of the spreader x 0.8 x 7.5.

Next determine the distance in feet that it takes to spread the entire load. Distance can be estimated or determined based on known field length. Then estimate the width of the spread in feet, allowing for a 10-20% pass overlap to ensure uniform coverage. Calculate the area covered and divide by 43,560 to convert to acres. Divide the weight or volume of manure in the spreader by the acres covered to determine the application rate for the given spreader setting (length x width of spread / acres covered = application rate in tons or gallons). Adjust the spreader settings and redo the calculations until the desired application rate is achieved.

Application rates in inches being applied through **liquid irrigation** systems can be determined by using the formula, inches applied = (cfs X hrs)/ac. In the formula, cfs represents the cubic feet per second, hrs represents the hours that the water has run, and ac. represents the acres covered. If the water is measured in gpm, it can be converted to cfs by dividing gpm by 450. The acres can be calculated by multiplying the width and length of the set, and then dividing by 43,560 (length x width / 43,560).

Where sprinkler systems are used, application rates can be estimated by placing six straight-sided cans at various locations under the sprinkler system. Measure the depth of liquid in inches accumulated in the cans over a period of time (e.g., 1 hour). Calculate the average depth of liquid in the cans and divide by the time interval to determine the application rate in inches per hour. Contact NRCS or USU if additional assistance is needed in calibrating your manure spreading equipment.

4.4 Narrative Nutrient Management Planning (IX.B.)

Nutrients will be applied to fields as outlined in the following tables for each field according to the NRCS standard 590 application rates identified in the NRCS Nutrient balance spreadsheet.

Each field where manure will be applied will be addressed individually using the specification sheet for that field and the guidelines for application outlined above, section 4.2.

When soil test phosphorus is less than 50 ppm manure will be applied in the fall to meet the nitrogen needs of the crop. It may be necessary to make several applications over the field to achieve the proper rate for nitrogen of the crop.

When soil test phosphorus is more than 50 ppm but less than 100 ppm manure will be applied in the fall, or possibly in the spring to meet the phosphorus needs of the crop. Nitrogen needs will be met using commercial fertilizer. It may be necessary to make several applications over the field to achieve the proper rate for phosphorus of the crop.

When soil test phosphorus is more than 100 ppm but less than 120 ppm manure will be applied in the fall, or possibly in the spring, to meet the half the phosphorus needs of the crop.

When soil test phosphorus is more than 120 ppm no manure will be applied to that field.

Field Nutrient Balance (Manure-spreadable Area)

The amount of fertilizer and manure applied to these fields depends on the current soil test and projected yield of the crop. The Miller Brothers farm manager rarely applies manure to the fields as the benefits of composting the material and selling the finished compost exceeds the value of the manure in the field. The farm manager applies commercial fertilizer to maintain fertility and achieve yield goals. Annual soil tests are taken and used to determine the amount of commercial application.

Field numbers (A-2,3,4,5,6 and 7) are used to apply excess liquids from the waste water containment facilities in the fall and spring. Special attention needs to be given to the spring soil test to determine nutrient requirements. It is anticipated that the phosphorus levels will not exceed recommendations because the liquids applied will not contain significant solids which carry the bulk of the phosphorus in the manure. However, soil tests will be taken in the spring of each year to determine phosphorus levels before applying additional commercial amendments.

Crops rotation and expected yields for 2017 through 2021 are listed in Table 5. The normal rotation consists of 4 years of Alfalfa followed by a year of corn then two years of small grain, normally Wheat then Barley.

Table 6; Fields and crops for Permit period

Year	Field	Size	Crop	Yield Goal	2018 Crop		2019 CropYear		2020 Crop year		2021 Crop	
		Acres		UNITS /Acre	Crop	Yield Goal	Crop	Yield Goal	Crop	Yield Goal	Crop	Yield Goal
2017	A-5	15	Barley	150	Corn	35 T	Hay	6 Ton	Hay	6 Ton	Hay	6 Ton
	D-10	23	Barley	150	Corn	35 t	Hay		Hay		Hay	
	D-11	1	Barley	150	Corn	35 t	Hay		Hay		Hay	
	D-6	4	Barley	150	Corn	35 T	Hay		Hay		Hay	
	E-2	12	Barley	150	Corn	35 T	Hay		Hay		Hay	
	A-1	17.75	Corn	**36**	Wheat	**100 Bu**	Barley		Hay		Hay	
	A-2	100	Corn	36	Wheat	100 Bu	Barley		Hay		Hay	
	B-4	33	Corn	36	Wheat	100 Bu	Barley		Hay		Hay	
	B-7	52.54	Corn	36	Wheat	100 Bu	Barley		Hay		Hay	
	C-7	22.03	Corn	36	Wheat	100 Bu	Barley		Hay		Hay	
	C-9	7.5	Corn	36	Wheat	100 Bu	Barley		Hay		Hay	
	D-3	10.39	Corn	**36**	Wheat	**100 Bu**	Barley		Hay		Hay	
	D-4	48.31	Corn	36	Wheat	100 Bu	Barley		Hay		Hay	
	D-5	58.02	Corn	36	Wheat	100 Bu	Barley		Hay		Hay	
	D-8	21.38	Corn	36	Wheat	100 Bu	Barley		Hay		Hay	
	C-10	20.06	Grass	2,5 T	Grass	2.5 T	Grass		Grass		Grass	

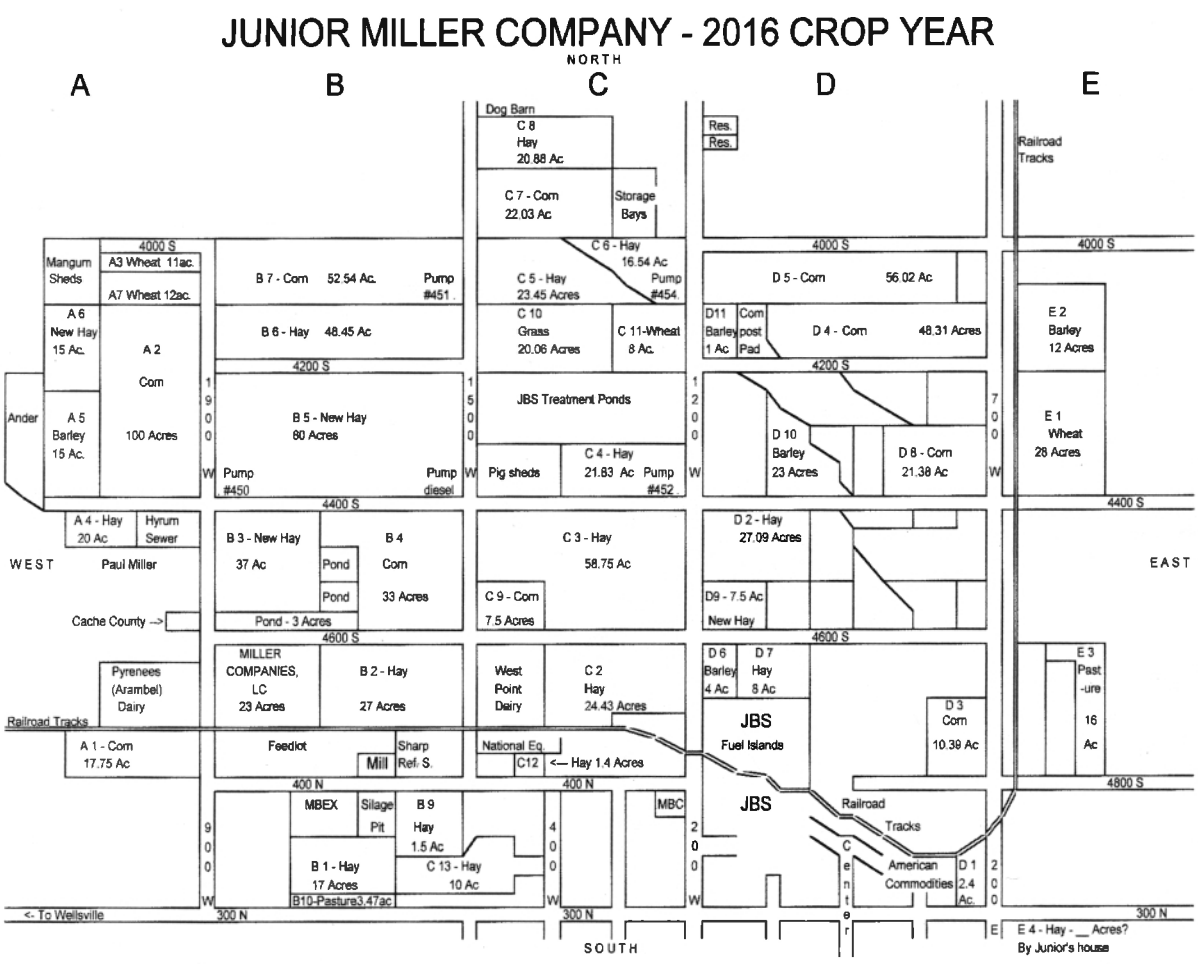
Year	Field	Size	Crop	Yield Goal	2018 Crop		2019 CropYear		2020 Crop year		2021 Crop	
		Acres		UNITS /Acre	Crop	Yield Goal	Crop	Yield Goal	Crop	Yield Goal	Crop	Yield Goal
	A-4	20	Hay	6	Corn	35 T	Wheat		Barley		Hay	
	B-1	17	Hay	6	Corn	**35 T**	Wheat		Barley		Hay	
	B-6	48.45	Hay	6	Corn	35 T	Wheat		Barley		Hay	
	C-12	1.4	Hay	6	Corn	35 T	Wheat		Barley		Hay	
	C-13	10	Hay	6	Corn	35 T	Wheat		Barley		Hay	
	C-2	24.43	Hay	6	Hay	6 T	Corn		Wheat		Barley	
	C-3	58.75	Hay	6	Hay	6 T	Corn		Wheat		Barley	
	C-4	21.83	Hay	6	**Hay**	**6 T**	**Corn**		**Wheat**		**Barley**	
	C-5	23.45	Hay	6	Hay	6 T	Corn		Wheat		Barley	
	C-6	16.54	Hay	6	Hay	6 T	Corn		Wheat		Barley	
	C-8	20.88	Hay	6	Hay	6 T	Corn		Wheat		Barley	
	D-2	27.09	Hay	6	Hay	6 T	Hay		Corn		Barley	
	D-7	8	Hay	6	Hay	6 T	Hay		Corn		Barley	
	E-4	2	Hay	6	Hay	**6 T**	Hay		Corn		Barley	
	B-2	27	Hay	6	Hay	6 T	Hay		Corn		Barley	
	A-6	15	Nu Hay	4	Hay	6 T	Hay		Hay		Corn	
	B-3	37	Nu hay	4	Hay	6 T	Hay		Hay		Corn	
	B-5	80	Nu Hay	4	Hay	6 T	Hay		Hay		Corn	
	D-9	7.5	Nu Hay	4	Hay	6 T	Hay		Hay		Corn	
	D-1	2.4	Pasture	10	Pasture	10 AU	Pasture	10	Pasture	10	Pasture	10 Au
	E-3	16	Pasture	10	Pasture	10 Au	Pasture	10	Pasture	10	Pasture	10 Au
	A-3	11	Wheat	100	Hay	6 T	Hay		Hay		Corn	
	A-7	12	Wheat	100	Hay	6 T	Hay		Hay		Corn	
	C-11	8	Wheat	100	Hay	6 T	Hay		Hay		Corn	
	E-1	28	Wheat	100	Hay	6 T	Hay		Hay		Corn	

4.5 Field Maps

Map of MBEX fields, Feedlot and Composting operation

Map 3, Production area and application fields

Map 4; Schematic of MBEX property with Fields



4.6 Soil and Field Information

Map 5, Soils Map of MBEX property

4.7 Nitrogen and Phosphorus Risk Analysis

Table 7, Utah Manure Application Risk Index Worksheet

*Utah Manure Application Risk Index Worksheet

Landowner:	MBEX	**Weather Station:**	Logan 5 SW Exp. Farm
Planner:	Howard Thomas	**Location:**	Logan, Utah
Winter Precipitation:	8.1	**Date:**	April 29, 2017

Tract:	2940	2940	2940	2940	2940	4500	4500	
Field:	A-5	A-6	A-7	A-3	B-7	b-6	B-5	B-3
Soil Symbol:	NcA	NcA	NcA	NcA	NcA	NcA	NcA	NcA
Adj AWC (5ft):	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5
Section 1: Winter Application Parameters								
Distance	6	6	9	9	9	6	6	3
Irr. Type	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Cover Type	3	1.5	3	3	6	1.5	1.5	1.5
Containment	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Restrict. Lay.	3	3	3	3	3	3	3	3
Hyd. Group	3	3	3	3	3	3	3	3
% Slope	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Adj. AWC	2	2	2	2	2	2	2	2
Winter Precip.	1	1	1	1	1	1	1	1
Total Points:	22.5	21.0	25.5	25.5	28.5	21.0	21.0	18.0
Risk Level:	Low	Low	Low	Low	Low	Low	Low	Low
Practices to be implemented	SB	SB				SB	SB	
Section 2: Spring, Summer, Fall Application Parameters								
Distance	6	6	9	9	9	6	6	3
Irr. Type	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Cover Type	6	6	6	1.5	1.5	6	6	
Incorporation	6	6	6	6	6	6	6	
Restrict. Lay.	3	3	3	3	3	3	3	3
Hyd. Group	3	3	3	3	3	3	3	3
% Slope	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Runoff Control	2	3	1.5	1.5	1.5	3	3	
Irr. Efficiency	2	2	2	0.5	0.5	2	2	
Total Points:	31.0	32.0	33.5	27.5	27.5	32.0	32.0	
Risk Level:	Low	Low	Med.	Low	Low	Low	Low	
Practices to be implemented								

*Any individual features with a High rating should be evaluated and conservation practices applied where possible. Where a restrictive layer is present at <= 2 feet, manure should not be applied on frozen/snow covered ground nor at levels above agronomic rate for phosphorus.

Manure can be applied when the Utah Manure Application Risk Index (UMARI) is Low or medium. The fields that are used for emergency application during the winter season are all Low Risk because of the dyke maintained around the northern end of the fields. The results of the UMARI are presented above in Table 7.

4.8 Required NMP reports to DWQ, (IX.D.)

1. The CAFO's planned crop rotations for each field for the period of permit coverage;
2. The projected amount of manure, litter, or process wastewater to be applied;
3. Projected credits for all nitrogen in the field that will beplant-available;
4. Consideration of multi-year phosphorus application;
5. Accounting for other additions of plant-available nitrogen and phosphorus to the field; and
6. The predicted form, source, and method of application of manure, litter, and process wastewater for each crop.

4.9 Required Calculations (IX.E)

1. Utilizing NRCS Practice 590 and current soil and manure monitoring results, CAFOs must calculate and determine the maximum amounts of manure, litter, and process wastewater to be land applied on a field- specific basis, at least once each year based on the following data:

A A determination of nitrogen and phosphorus available in soil that will be available during the growing season. This includes nitrogen mineralization from previous land applications.

B The results of most recent representative manure, litter and process wastewater test for nitrogen and phosphorus taken within 12 months or less of the date of land application, in order to determine the amount of nitrogen and phosphorus in the manure, litter and process wastewater to be applied.

Section 5. Best Management Practices

5.1 Required BMPs (IX.G.)

Perform weekly visual inspections, daily inspections of water lines, depth markers, weekly inspections of impoundments, correct any deficiencies, freeboard management, maintain records of field applications and water level management in all four lagoons and holding ponds. (See recording requirements Section 8)

- Remove the field evaporation pond, to prevent ponding of contaminated water.
- Construct a concrete pumping box to transfer contaminated water to the 3xisting large ponds.
- Install pump and emergency generator to move water to the ponds from the concrete pump box.

Install depth markers in each of the ponds so that periodic readings can be made and reported.

- Use cross tillage in all fields that will receive waste water to prevent channelization and direct flows to the field edges.
- Use liquid spreader to remove water and apply to fields. This will ensure adequate storage because the ponds will be empty in the fall and allow for emergence removal during severe storm events.
- Maintain existing drain system to eliminate leakage and divert clean water away from ponds.

Section 6. Emergency Spill and Discharge Response plan

6.1 Emergency Response Plan (XI.D.)

In Case of an Emergency Storage Facility Spill, Leak or Failure

Implement the following first containment steps:

a. Stop all other activities to address the spill.
b. Stop the flow. For example, use skid loader or tractor with blade to contain or divert spill or leak.
c. Call for help and excavator if needed.
d. Complete the clean-up and repair the necessary components.
e. Assess the extent of the emergency and request additional help if needed.

In Case of an Emergency Spill, Leak or Failure during Transport or Land Application

Implement the following first containment steps:

a. Stop all other activities to address the spill and stop the flow.
b. Call for help if needed.
c. If the spill posed a hazard to local traffic, call for local traffic control assistance and clear the road and roadside of spilled material.
d. Contain the spill or runoff from entering surface waters using straw bales, saw dust, soil or other appropriate materials.
e. If flow is coming from a tile, plug the tile with a tile plug immediately.
f. Assess the extent of the emergency and request additional help if needed.

Emergency Contacts

Department / Agency	Phone Number
Fire	911
State veterinarian	(801) 538-4910
Sheriff or local police	(435)755-1000

Nearest available excavation equipment/supplies for responding to emergency

Equipment Type	Contact Person	Phone Number
Back Hoe	Scot Woolstenhume	(435) 245-8634
Gravel Truck	Scot Woolstenhume	(435) 245-8634

Contacts to be made by the owner or operator within 24 hours

Organization	Phone Number
DWQ Spill Hotline	(801) 536-4123
DWQ CAFO Coordinator	(801) 536-4492
County Health Department	(435) 734-0845

Be prepared to provide the following information:

a. Your name and contact information.
b. Farm location (driving directions) and other pertinent information.
c. Description of emergency.
d. Estimate of the amounts, area covered, and distance traveled.
e. Whether manure has reached surface waters or major field drains.
f. Whether there is any obvious damage: employee injury, fish kill, or property damage.
g. Current status of containment efforts.

6.2 Required Discharge and Noncompliance Reporting (XI.E.)

Any discharge must be reported to the Division of Water Quality within 24 hours of the spill. Required information includes, the time of the discharge, mitigation and repair activities, and plans to prevent further discharges.

Section 7. Other Requirements and Practices

7.1 Bio-security Measures

Biosecurity is critical to protecting livestock and poultry operations. Visitors must contact and check in with the producer before visiting the operation or entering any production or storage facility.

The following narrative describes how animal veterinary wastes (including medical equipment, empty containers, sharps and expired medications) will be managed at the operation.

Signage is posted on the site that no unauthorized admittance is allowed. It is the policy of the owners that visitors to the ranch obtain permission from the owner before prior to entering the facility.

Sharps are disposed of in Biohazard Waste containers. Expired medications are incinerated.

7.2 Closure of Facilities, (XI.C.)

In the event of manure handling facility closure or farm closure, the farm must implement NRCS Practice 360. The NMP needs to include the closure requirements in the permit. Waste Facility Closure Practice NRCS 360 is located in Appendix 1.

7.3 Transfer of Manure, Litter, and Process Wastewater to Other Persons

Transfer forms will be used and requirements in the permit will need to be followed.
When manure, litter, compost, or process wastewater is sold or given away, the permittee must comply with the following conditions:

Maintain records showing the date and amount of manure, litter, compost and/or process wastewater that leaves the permitted operation on an annual basis;

Record the name and address of the recipient;

Provide the recipient(s) with representative information on the phosphorus and nitrogen content of the manure, litter, compost and/or process wastewater; and for a period of five years, permit-related records are to be retained on-site and made available for review upon request. Also, records are to be submitted to DWQ upon request.

Section 8. Record Keeping

8.1 List of Required Records. (IX.A.9., XII.B., XII.C., XII.D.)

Records of sampling of soils, manure, litter, process wastewater, or discharge monitoring shall include the following information for sampling or measurement at the CAFO:
The date, location, and time of sampling or measurements;
The individual(s) who performed the sampling or measurements;

The sampling methods used;

The analytical methods used (the NMP must include the methodology used). The methodology used must comply with 40 CFR 136.3. Tables 1A and 1B) and,

The results of the monitoring.

List of Required Records for Permit Compliance;

If applicable, the following records are required and must be kept onsite:

Current copy of NMP;

Copy of NOI or other permit application;

Copies of annual reports;

Manure transfer records per XI.A;

Records needed to document implementation of IX. A, essential NMP requirements;

Records of mortality management;

Records of overflows or discharges to surface waters of the state with the date, time, and estimated volume of any overflow;

Land application records;

Dates of applications,

Weather conditions at time of application and 24 hours prior to application,

Amount of manure, litter, compost, or process wastewater applied.

Methods and protocols used to sample and analyze soil, manure, litter, compost, or process wastewater;

Results of soil, manure, litter, compost, or process wastewater monitoring;

Expected and actual crop yield records;

Description for the basis for determining application rates;

Calculations showing the total nitrogen and phosphorus applied to each field, including sources other than manure, litter, compost, or process wastewater;

Methods used to apply manure, litter, compost, and process wastewater;

Dates of manure application equipment inspections and calibrations;

Weekly inspections of structures and impoundments;

Weekly freeboard readings;

Records documenting corrective actions. Deficiencies not corrected within 30 days must be accompanied by an explanation of the factors preventing immediate correction; and

Records documenting the current design of any manure, litter, compost, and process wastewater storage structures, including volume for solids accumulation, design treatment volume, total design volume, and approximate number of days of storage capacity.

Section 9. Monitoring and Analytical Methods, (IX.A.7)

9.1 Manure and Soil Sampling Frequency

Manure samples will be taken annually according to guidelines in the NRCS practice 590 protocols. Soil samples will be collected annually for all fields where manure and waste water are applied.

Soil and Manure Testing

Directions on collecting soil samples

For nitrogen-based applications, collect separate soil samples at depths of 0 to 12 and 12 to 24 inches. For phosphorus-based applications collect soil samples at a depth of 0 to 12 inches only. A soil probe is the most efficient way to collect samples. Probes are available on loan from County Extension Agents. Collect a composite sample by combining a minimum of 8-10 samples taken randomly throughout a field in a plastic bucket. Mix the samples and send at least one pint to the lab for analysis. More than one composite may be needed for large or highly variable fields. **Example**

Directions on collecting manure samples

Since manure is a variable material, proper procedures must be followed to ensure a representative sample is collected. For liquids, sample directly from the storage structure, from the outlet pipe where liquid is removed, or from the field using catch cans to collect samples applied through sprinklers. When sampling liquids, collect a minimum of six separate subsamples. Combine the subsamples in a clean bucket, mix well, and transfer approximately one pint of liquid to a clean bottle or other rigid container.

For solids, remove the surface six-inch crust and use an auger or shovel to core into the pile. Take a minimum of six separate sub- samples from around the pile and combine them in a clean bucket. Mix well and transfer approx. one quart to a clean plastic bag. Keep all samples cool until they can be transported to a lab.

9.3 Analytical Methods: USU approved laboratories will be used to provide test results for all soil and manure tests.

Section 10. Monitoring Results

10.1 Soil Sampling Results

Soil Testing: As a minimum, an initial soil test will be taken to establish base-line soil test phosphorus. Soil tests will then be taken on fields where manure is applied annually except on alfalfa and grass plantings where the soil test is required only every three years. Soil tests will be used to monitor phosphorus levels. Utah State University soil-testing procedures will be followed (Refer to the attached USU soil testing guidelines). Soil tests may be sent to Utah State University or other approved private testing facilities (see NRCS for a list of approved testing facilities). (See table 7)

Table 8 Fields and crops with Nutrient applications

Year	Field	Size	Crop	Yield Goal	Fertilizer Recs[1]			Nutrients Applied[2]			Balance After Recs[3]			Balance After Removal[4]	
		Acres		UNITS /Acre	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	P_2O_5 Lb/A	K_2O Lb/A
2016	A-5	15	Barley	150											
	D-10	23	Barley	150											
	D-11	1	Barley	150											
	D-6	4	Barley	150											
	E-2	12	Barley	150											
	A-1	17.75	Corn	**36**											
	A-2	100	Corn	36											
	B-4	33	Corn	36											
	B-7	52.54	Corn	36											
	C-7	22.03	Corn	36											
	C-9	7.5	Corn	36											
	D-3	10.39	Corn	**36**											
	D-4	48.31	Corn	36											
	D-5	58.02	Corn	36											
	D-8	21.38	Corn	36											
	C-10	20.06	Grass	4											

Year	Field	Size	Crop	Yield Goal	Fertilizer Recs[1]			Nutrients Applied[2]			Balance After Recs[3]			Balance After Removal[4]	
		Acres		UNITS /Acre	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	P_2O_5 Lb/A	K_2O Lb/A
9/13/16	A-4	20	Hay	6	11	30	385	145	40	0					
	B-1	17	Hay	6											
	B-6	48.45	Hay	6	11	47	675	150	0	0					
	C-12	1.4	Hay	6											
	C-13	10	Hay	6											
	C-2	24.43	Hay	6											
9/13/16	C-3	58.75	Hay	6	8	54	485	155	0	0					
	C-4	21.83	Hay	6	**7**	**38**	**350**	**150**	**0**	**0**					
9/13/16	C-5	23.45	Hay	6	8	24	395	155	75	0					
	C-6	16.54	Hay	6											
	C-8	20.88	Hay	6											
	D-2	27.09	Hay	6											
	D-7	8	Hay	6											
	E-4	2	Hay	6											
	B-2	27	Hay	6											
	A-6	15	Nu Hay	4											
	B-3	37	Nu hay	4											
	B-5	80	Nu Hay	4											
	D-9	7.5	Nu Hay	4											
	D-1	2.4	Pasture	10											
	E-3	16	Pasture	10											
	A-3	11	Wheat	100											
	A-7	12	Wheat	100											
	C-11	8	Wheat	100											
	E-1	28	Wheat	100											

10.2 Manure Sampling Results

Table 9 Waste water Nutrient Analysis

Wastewater Testing: Waste water tests will be taken at least yearly. Utah State University procedures will be followed to ensure the best possible results. Wastewater test values will be used to determine actual moisture and nutrient content of the manure. Adjustments will be made in application rates based on actual soil and manure tests.

10.3 Wastewater Sampling Results

Manure Source	Year	Dry Matter (%)	Total N	Total P_2O_5	Total K_2O	Avail. P_2O_5	Avail. K_2O	Units	Analysis Source and Date
North Pond	2017		.42Lb	.34	3.58	.27	3.04	Lbs/1000 Gallons	USU Analytical Labs June 22, 2017
	2018								
	2019								
	2020								
	2021								

(1) Entered analysis may be the average of several individual analyses.

(2) Utah assumes that 80% of manure phosphorus and 85% of manure potassium is crop available. First-year per-acre nitrogen availability for individual manure applications is given in the Planned Nutrient Applications table. For more information about nitrogen availability in Utah, see Manure Estimated Nutrient Content spreadsheet, version 3.0e2.

Section 11 Annual Report, (XI.B.)

11.1 Annual Report Requirements

The permittee must submit an annual report to DWQ by April 1 of each year covering permit coverage during the previous calendar year. The reporting requirements and April 1 deadline also applies to facilities with partial years of permit coverage. The feedlot will use the Annual Report Form for the annual report.

Annual reporting requirements include:

Report all discharges and instances of noncompliance.

The annual report may be submitted using the form in Addendum C or may be compiled separately.

The report will include the following information:

Discharges or non-compliance;

The number and type of animals;

The estimated amount of total manure, litter, compost and process wastewater generated by the CAFO;

The estimated amount of total manure, litter, compost and process wastewater transferred to other persons;

The total number of acres for land application;

The total number of acres under control of the CAFO that were used for land application of manure, litter, compost and process wastewater;

The summary of all manure, litter, compost and process wastewater discharges from the production area that have occurred in the previous 12 months including date, time, and approximate volume;

A statement indicating whether the current version of the CAFO's NMP was approved by a certified nutrient management planner; and

The following nutrient management planning information:

The actual crop(s) planted and actual yield(s) for each field;

The actual nitrogen and phosphorus content of the manure, litter, compost, and process wastewater;

The results of the calculations conducted in accordance with the Narrative Rate Approach;

The amount of manure, litter, compost, and process wastewater applied to each field during the previous 12-months;

For CAFOs utilizing the Narrative Rate Approach, the following information must be included in the Annual Report:

The results of any soil testing for nitrogen and phosphorus taken during the preceding 12 months,

The data used in calculations to determine maximum amounts of manure, compost, litter, and process wastewater to be land applied at least once each year using Paragraph IX.C.1.d., and

The amount of any supplemental fertilizer applied during the previous 12 months

Appendix A: Soil tests and Field Specification Sheets.

Table A 1; Soil Test Results (ppm) [Form to be filled out with new year test data]

Field	Test Year	OM (%)	P Test Used	P	K	Mg	Ca	Na	Soil pH	CEC (meq/ 100g)	NO_3-N
A-1											
A-2											
A-3											
A-4											
A-5											
A-6											
A-7											
B-1											
B-2											
B-3											
B-4											
B-5											
B-6											
B-7											
C-2											
C-3											
C-4											
C-5											
C-6											
C-7											
C-8											
C-9											
C-10											
c-11											
C-12											
C-13											

Field	Test Year	OM (%)	P Test Used	P	K	Mg	Ca	Na	Soil pH	CEC (meq/ 100g)	NO_3-N
D-1											
D-2											
D-3											
D-4											
D-5											
D-6											
D-7											
D-8											
D-9											
D-10											
D-11											
E-1											
E-2											
E-3											
E-4											

(1) Entered analysis may be the average of several individual analyses.

(2) Utah assumes that 80% of manure phosphorus and 85% of manure potassium is crop available. First-year per-acre nitrogen availability for individual manure applications is given in the Planned Nutrient Applications table. For more information about nitrogen availability in Utah, see Manure Estimated Nutrient Content spreadsheet, version 3.0e2.

Crop Rotations and Field Specification sheets.

1. the CAFO's planned crop rotations for each field for the period of permit coverage;

2. the projected amount of manure, litter, or process wastewater to be applied is identified for each field in the attached field specification sheets.

3. projected credits for all nitrogen in the field that will be plant-available; Since the NMP accounts for the decision to apply manure on the basis of the current soil test the nitrogen needs and credits are accounted for in the calculation.

4. consideration of multi-year phosphorus application; The NMP accounts for multiple year applications in the rate to be applied when perennial crops are planted.

5. accounting for other additions of plant-available nitrogen and phosphorus to the field; is accounted for in the calculation of the impact of the nitrogen fixing crops in the chosen rotation.

the predicted form, source, and method of application of manure, litter, and process wastewater for each crop.

Table A 2 Fields and crops with Nutrient applications

Year	Field	Size	Crop	Yield Goal	2018 Crop		2019 CropYear		2020 Crop year		2021 Crop	
		Acres		UNITS /Acre	Crop	Yield Goal	Crop	Yield Goal	Crop	Yield Goal	Crop	Yield Goal
2017	A-5	15	Barley	150								
	D-10	23	Barley	150								
	D-11	1	Barley	150								
	D-6	4	Barley	150								
	E-2	12	Barley	150								
	A-1	17.75	Corn	**36**								
	A-2	100	Corn	36								
	B-4	33	Corn	36								
	B-7	52.54	Corn	36								
	C-7	22.03	Corn	36								
	C-9	7.5	Corn	36								
	D-3	10.39	Corn	**36**								
	D-4	48.31	Corn	36								
	D-5	58.02	Corn	36								
	D-8	21.38	Corn	36								
	C-10	20.06	Grass	4								
	A-4	20	Hay	6								
	B-1	17	Hay	6								
	B-6	48.45	Hay	6								

Year	Field	Size	Crop	Yield Goal	2018 Crop		2019 CropYear		2020 Crop year		2021 Crop	
		Acres		UNITS /Acre	Crop	Yield Goal	Crop	Yield Goal	Crop	Yield Goal	Crop	Yield Goal
	C-12	1.4	Hay	6								
	C-13	10	Hay	6								
	C-2	24.43	Hay	6								
	C-3	58.75	Hay	6								
	C-4	21.83	Hay	6								
	C-5	23.45	Hay	6								
	C-6	16.54	Hay	6								
	C-8	20.88	Hay	6								
	D-2	27.09	Hay	6								
	D-7	8	Hay	6								
	E-4	2	Hay	6								
	B-2	27	Hay	6								
	A-6	15	Nu Hay	4								
	B-3	37	Nu hay	4								
	B-5	80	Nu Hay	4								
	D-9	7.5	Nu Hay	4								
	D-1	2.4	Pasture	10								
	E-3	16	Pasture	10								
	A-3	11	Wheat	100								
	A-7	12	Wheat	100								
	C-11	8	Wheat	100								
	E-1	28	Wheat	100								

Appendix Table A 3

NUTRIENT MANAGEMENT (Manure) SPECIFICATION SHEET (590)

Name: Miller Brothers Express **Date:** 06/23/17

Planned By: HRT **Field Office:** Logan

Purpose(s):
- To budget and supply nutrients for plant production.
- To minimize agricultural non-point source pollution of surface and ground water resources.
- To maintain or improve the physical, chemical and biological condition of soil.
- To prevent or reduce excess nutrient concentrations in the soil.

Field and Soil Information

Year: 2016

Tract/Field Number(s): 125 acre pivot field Number of Acres: 125

Crop: Alfalfa Yield Goal: 30 tons

Soil test nitrate-N: 11 ppm Soil test P: 47 ppm

Crop nitrogen (N) recommendation:	0	lb N/acre	Based on:	Crop Uptake
Crop phosphorus (P205) recommendation:	390	lb P205/acre	Based on:	Crop Uptake

Manure Information

Manure form:	liquid	
Manure N content:	0.4	lbs/1000 gallons
Manure P205 content:	0.3	lbs/1000 gallons

Application Information

Method of application: Broadcast-incorporated Method of Incorporation: Sprinkler

Timing of Incorporation: Manure will be incorporated within 2-4 days

Date of application: _____ Field Conditions: _____

Basis of Application: Nitrogen Actual Application Rate: _____ X 1000 gal/acre

Calculations

	N-based	P205-based	
1. Nutrients needed	0	390	lbs/acre
2. Nutrient from other sources (credits)			lbs/acre
3. Additional nutrients needed (lb/acre)	0	390	lbs/acre
4. Total N and P205 in manure	0.4	0.3	lbs/1000 gallons
5. Nutrient availability factor	57%	90%	
6. Available nutrients in manure	0.2	0.3	lbs/1000 gallons
7. Manure application rate	0	1275	X 1000 gal/acre
8. Travel distance while unloading spreader	0	10	feet

Certification

I agree to the installation and maintenance of this practice as outlined. This practice, as installed, meets NRCS Standards and Specifications.

Cooperator: _____ **Planner:** _____

Appendix Table A 4

SPECIFICATION SHEET (590)

Name: Miller Brothers Express **Date:** 06/23/17

Planned By: HRT **Field Office:** Logan

Purpose(s):
- To budget and supply nutrients for plant production.
- To minimize agricultural non-point source pollution of surface and ground water resources.
- To maintain or improve the physical, chemical and biological condition of soil.
- To prevent or reduce excess nutrient concentrations in the soil.

Field and Soil Information — Year: 2016

Tract/Field Number(s): C-4 Number of Acres: 25

Crop: Wheat (Irr) Yield Goal: 100 bu

Soil test nitrate-N: 8 ppm Soil test P: 54 ppm

Crop nitrogen (N) recommendation:	142	lb N/acre	Based on:	Crop Uptake
Crop phosphorus (P205) recommendation:	70	lb P205/acre	Based on:	Crop Uptake

Manure Information

Manure form:	liquid	
Manure N content:	0.4	lbs/1000 gallons
Manure P205 content:	0.3	lbs/1000 gallons

Application Information

Method of application: Broadcast Method of Incorporation: Plow

Timing of Incorporation: Manure will be incorporated within 2-4 days

Date of application: _____ Field Conditions: _____

Basis of Application: Nitrogen Actual Application Rate: _____ X 1000 gal/acre

Calculations

	N-based	P205-based	
1. Nutrients needed	142	70	lbs/acre
2. Nutrient from other sources (credits)			lbs/acre
3. Additional nutrients needed (lb/acre)	142	70	lbs/acre
4. Total N and P205 in manure	0.4	0.3	lbs/1000 gallons
5. Nutrient availability factor	57%	90%	
6. Available nutrients in manure	0.2	0.3	lbs/1000 gallons
7. Manure application rate	588	229	X 1000 gal/acre
8. Travel distance while unloading spreader	10	30	feet

Certification

I agree to the installation and maintenance of this practice as outlined. This practice, as installed, meets NRCS Standards and Specifications.

Cooperator: _____ **Planner:** _____

Table 5 Appendix A

NUTRIENT MANAGEMENT (Manure) SPECIFICATION SHEET (590)

Name: Miller Brothers Express **Date:** 06/23/17

Planned By: HRT **Field Office:** Logan

Purpose(s):
- To budget and supply nutrients for plant production.
- To minimize agricultural non-point source pollution of surface and ground water resources.
- To maintain or improve the physical, chemical and biological condition of soil.
- To prevent or reduce excess nutrient concentrations in the soil.

Field and Soil Information — Year: 2016

Tract/Field Number(s): A-4 Number of Acres: 20

Crop: Alfalfa Yield Goal: 30 tons

Soil test nitrate-N: 11 ppm Soil test P: 30 ppm

Crop nitrogen (N) recommendation:	0	lb N/acre	Based on:	Crop Uptake
Crop phosphorus (P205) recommendation:	390	lb P205/acre	Based on:	Crop Uptake

Manure Information

Manure form:	liquid	
Manure N content:	0.4	lbs/1000 gallons
Manure P205 content:	0.3	lbs/1000 gallons

Application Information

Method of application: Broadcast Method of Incorporation: Plow

Timing of Incorporation: Manure will be incorporated within 5-7 days

Date of application: _____ Field Conditions: _____

Basis of Application: Nitrogen Actual Application Rate: _____ X 1000 gal/acre

Calculations

	N-based	P205-based	
1. Nutrients needed	0	390	lbs/acre
2. Nutrient from other sources (credits)			lbs/acre
3. Additional nutrients needed (lb/acre)	0	390	lbs/acre
4. Total N and P205 in manure	0.4	0.3	lbs/1000 gallons
5. Nutrient availability factor	57%	90%	
6. Available nutrients in manure	0.2	0.3	lbs/1000 gallons
7. Manure application rate	0	1275	X 1000 gal/acre
8. Travel distance while unloading spreader	0	10	feet

Certification

I agree to the installation and maintenance of this practice as outlined. This practice, as installed, meets NRCS Standards and Specifications.

Cooperator: _____ **Planner:** _____

Table 6 Appendix A.

NUTRIENT MANAGEMENT (Manure) SPECIFICATION SHEET (590)

Name: Miller Brothers Express **Date:** 06/23/17

Planned By: HRT **Field Office:** Logan

Purpose(s):
- To budget and supply nutrients for plant production.
- To minimize agricultural non-point source pollution of surface and ground water resources.
- To maintain or improve the physical, chemical and biological condition of soil.
- To prevent or reduce excess nutrient concentrations in the soil.

Field and Soil Information

Year: 2016

Tract/Field Number(s): C-5 Number of Acres: 23.5

Crop: Alfalfa Yield Goal: 30 tons

Soil test nitrate-N: 8 ppm Soil test P: 24 ppm

Crop nitrogen (N) recommendation:	0	lb N/acre	Based on:	Crop Uptake
Crop phosphorus (P205) recommendation:	390	lb P205/acre	Based on:	Crop Uptake

Manure Information

Manure form:	liquid	
Manure N content:	0.4	lbs/1000 gallons
Manure P205 content:	0.3	lbs/1000 gallons

Application Information

Method of application: Broadcast Method of Incorporation: Plow

Timing of Incorporation: Manure will be incorporated within 5-7 days

Date of application: _____ Field Conditions: _____

Basis of Application: Nitrogen Actual Application Rate: _____ X 1000 gal/acre

Calculations

	N-based	P205-based	
1. Nutrients needed	0	390	lbs/acre
2. Nutrient from other sources (credits)			lbs/acre
3. Additional nutrients needed (lb/acre)	0	390	lbs/acre
4. Total N and P205 in manure	0.4	0.3	lbs/1000 gallons
5. Nutrient availability factor	57%	90%	
6. Available nutrients in manure	0.2	0.3	lbs/1000 gallons
7. Manure application rate	0	1275	X 1000 gal/acre
8. Travel distance while unloading spreader	0	10	feet

Certification

I agree to the installation and maintenance of this practice as outlined. This practice, as installed, meets NRCS Standards and Specifications.

Cooperator: _____ **Planner:** _____

Table 7 Appendix A

NUTRIENT MANAGEMENT (Manure) SPECIFICATION SHEET (590)

Name: Miller Brothers Express **Date:** 06/23/17

Planned By: HRT **Field Office:** Logan

Purpose(s):
- To budget and supply nutrients for plant production.
- To minimize agricultural non-point source pollution of surface and ground water resources.
- To maintain or improve the physical, chemical and biological condition of soil.
- To prevent or reduce excess nutrient concentrations in the soil.

Field and Soil Information

Year: 2016

Tract/Field Number(s): B-6 Number of Acres: 48.5

Crop: Alfalfa Yield Goal: 30 tons

Soil test nitrate-N: 11 ppm Soil test P: 47 ppm

Crop nitrogen (N) recommendation:	0	lb N/acre	Based on:	Crop Uptake
Crop phosphorus (P205) recommendation:	390	lb P205/acre	Based on:	Crop Uptake

Manure Information

Manure form:	liquid	
Manure N content:	0.4	lbs/1000 gallons
Manure P205 content:	0.3	lbs/1000 gallons

Application Information

Method of application: Broadcast Method of Incorporation: Plow

Timing of Incorporation: Manure will be incorporated within 5-7 days

Date of application: _____ Field Conditions: _____

Basis of Application: Nitrogen Actual Application Rate: _____ X 1000 gal/acre

Calculations

	N-based	P205-based	
1. Nutrients needed	0	390	lbs/acre
2. Nutrient from other sources (credits)			lbs/acre
3. Additional nutrients needed (lb/acre)	0	390	lbs/acre
4. Total N and P205 in manure	0.4	0.3	lbs/1000 gallons
5. Nutrient availability factor	57%	90%	
6. Available nutrients in manure	0.2	0.3	lbs/1000 gallons
7. Manure application rate	0	1275	X 1000 gal/acre
8. Travel distance while unloading spreader	0	10	feet

Certification

I agree to the installation and maintenance of this practice as outlined. This practice, as installed, meets NRCS Standards and Specifications.

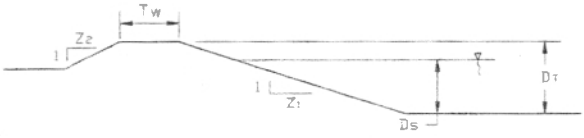
Cooperator: _____ **Planner:** _____

Worksheet 6

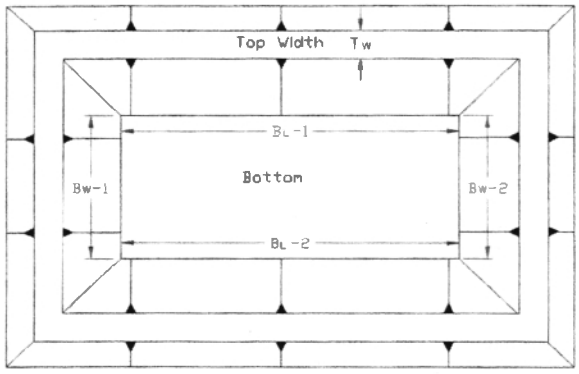
WASTE STORAGE POND VOLUME

Project: Miller Bros. Express North Lagoon
Location: 141 X 136 (W XL top) 1-3 slope

Date: 7/3/2004
By: trm



CROSS SECTION



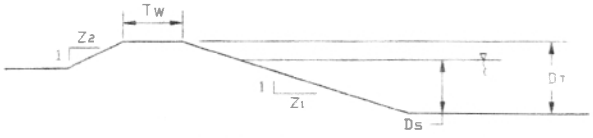
PLAN VIEW

Given Data:		Computed Data:	
46.0	= Bottom Length - BL-1 (Ft.)	46.0	= Average Bottom Length (Ft.)
46.0	= Bottom Length - BL-2 (Ft.)	51.0	= Average Bottom Width (Ft.)
51.0	= Bottom Width - BW-1 (Ft.)	2,346	= Surface Area at Bottom (Sq. Ft.)
51.0	= Bottom Width - BW-2 (Ft.)	8,736	= Surface Area at Midpoint Storage Depth (Sq. Ft.)
15.00	= Storage Depth - Ds (Ft.)	19,176	= Surface Area at Full Storage Depth (Sq. Ft.)
16.00	= Storage Depth + Freeboard - DT (Ft.)	20,874	= Surface Area at Full Storage Depth + Freeboard (Sq. Ft.)
3.00	= Side Slope (Z_1)	141,165	= Volume at Storage Depth (Cu. Ft.)
3.00	= Side Slope (Z_2)	1,055,914	= Volume at Storage Depth (Gal)
10.00	= Top Width (Tw)	150,576	= Volume at Storage Depth + Freeboard (Cu. Ft.)

Worksheet 7

WASTE STORAGE POND VOLUME

Project: Miller Bros. Express Middle Lagoon **Date: 7/3/2004**
Location: 141 X 258 (W X L top) 1-3 slope **By: trm**



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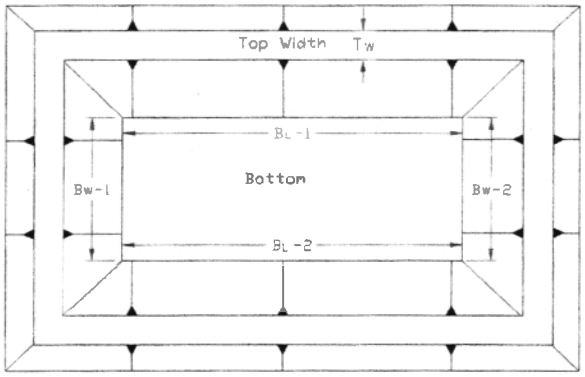


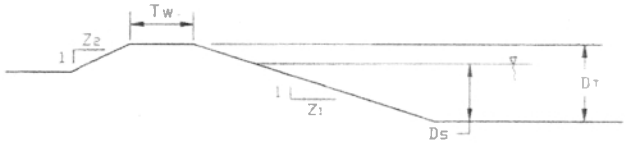
PLAN VIEW

Given Data:		Computed Data:	
168.0	= Bottom Length - BL-1 (Ft.)	168.0	= Average Bottom Length (Ft.)
168.0	= Bottom Length - BL-2 (Ft.)	51.0	= Average Bottom Width (Ft.)
51.0	= Bottom Width - BW-1 (Ft.)	8,568	= Surface Area at Bottom (Sq. Ft.)
51.0	= Bottom Width - BW-2 (Ft.)	20,448	= Surface Area at Midpoint Storage Depth (Sq. Ft.)
15.00	= Storage Depth - Ds (Ft.)	36,378	= Surface Area at Full Storage Depth (Sq. Ft.)
16.00	= Storage Depth + Freeboard - DT (Ft.)	38,808	= Surface Area at Full Storage Depth + Freeboard (Sq. Ft.)
3.00	= Side Slope (Z_1)	316,845	= Volume at Storage Depth (Cu. Ft.)
3.00	= Side Slope (Z_2)	2,370,001	= Volume at Storage Depth (Gal)
10.00	= Top Width (Tw)	337,968	= Volume at Storage Depth + Freeboard (Cu. Ft.)

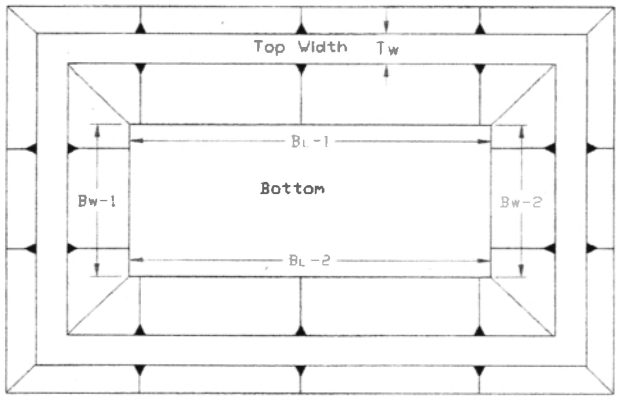
Worksheet 8

WASTE STORAGE POND VOLUME

Project: Miller Bros. Express South Lagoon **Date: 7/3/2004**
Location: 141 X 115 (W X L top) 1-3 slope **By: trm**



CROSS SECTION



PLAN VIEW

Given Data:		Computed Data:
25.0	= Bottom Length - BL-1 (Ft.)	25.0 = Average Bottom Length (Ft.)
25.0	= Bottom Length - BL-2 (Ft.)	51.0 = Average Bottom Width (Ft.)
51.0	= Bottom Width - BW-1 (Ft.)	1,275 = Surface Area at Bottom (Sq. Ft.)
51.0	= Bottom Width - BW-2 (Ft.)	6,720 = Surface Area at Midpoint Storage Depth (Sq. Ft.)
15.00	= Storage Depth - Ds (Ft.)	16,215 = Surface Area at Full Storage Depth (Sq. Ft.)
16.00	= Storage Depth + Freeboard - DT (Ft.)	17,787 = Surface Area at Full Storage Depth + Freeboard (Sq. Ft.)
3.00	= Side Slope (Z_1)	110,925 = Volume at Storage Depth (Cu. Ft.)
3.00	= Side Slope (Z_2)	829,719 = Volume at Storage Depth (Gal)
10.00	= Top Width (Tw)	118,320 = Volume at Storage Depth + Freeboard (Cu. Ft.)

Appendix B: NRCS Practice Standards; Nutrient Management 590 and Waste Facility Closure 360

NATURAL RESOURCES CONSERVATION SERVICE

CONSERVATION PRACTICE STANDARD

NUTRIENT MANAGEMENT

(Ac.)

CODE 590

DEFINITION

Managing the amount (rate), source, placement (method of application), and timing of plant nutrients and soil amendments.

PURPOSE

- To budget, supply, and conserve nutrients for plant production.
- To minimize agricultural nonpoint source pollution of surface and groundwater resources.
- To properly utilize manure or organic by-products as a plant nutrient source.
- To protect air quality by reducing odors, nitrogen emissions (ammonia, oxides of nitrogen), and the formation of atmospheric particulates.
- To maintain or improve the physical, chemical, and biological condition of soil.

CONDITIONS WHERE PRACTICE APPLIES

This practice applies to all lands where plant nutrients and soil amendments are applied. This standard does not apply to one-time nutrient applications to establish perennial crops.

CRITERIA

General Criteria Applicable to All Purposes

A nutrient budget for nitrogen, phosphorus, and potassium must be developed that considers all potential sources of nutrients including, but not limited to, green manures, legumes, crop residues, compost, animal manure, organic by-products, biosolids, waste water, organic matter, soil biological activity, commercial fertilizer, and irrigation water. Enhanced efficiency fertilizers, used in Utah must be defined by the Association of American Plant Food Control Officials (AAPFCO) and be accepted for use by
Robert L. Hougaard Utah Department of Agriculture and Food 350 N. Redwood Rd. PO Box 146500 Salt Lake City, UT 84114-6500 Phone: (801) 538-7187 who is the State fertilizer control official, with responsibility for verification of product guarantees, ingredients (by AAPFCO definition) and label claims.

For nutrient risk assessment policy and procedures see Title 190, General Manual (GM), Part 402, Nutrient Management, and Title 190, National Instruction (NI), Part 302, Nutrient Management Policy Implementation.
To avoid salt damage, the rate of applied nitrogen and potassium in starter fertilizer must be consistent with Utah State University guidelines; The Utah Fertilizer Guidehttp://extension.usu.edu/files/publications/publication/AG_431.pdf Page 23. The NRCS-approved nutrient risk assessment for nitrogen must be completed on all source protection zones

identified by the State of Utah Department of Environmental Quality Division of Drinking Water. NRCS Field offices have access to this GIS database layer . Contact Ryan Pierce at NRCS for specific maps and updates.
The NRCS-approved nutrient risk assessment for phosphorus must be completed when:

- phosphorus application rate exceeds Utah State University fertility rate guidelines for the planned crop(s), or
- the planned area is within a phosphorus- impaired watershed (contributes to 303d-listed water bodies), or
- where NRCS and the State of Utah Division of Water Quality have not determined specific conditions where the risk of phosphorus loss is low.

A phosphorus risk assessment will not be required when the State NRCS, with concurrence of the State of Utah Division of Water Quality, has determined specific conditions where the risk of phosphorus loss is low. These fields must have a documented agronomic need for phosphorus; based on soil test phosphorus (STP) and Utah State University nutrient recommendations. When Nutrient Management 590 is planned, all fields will be rated using Utah's Manure Application Risk Index UMARI.

On organic operations, the nutrient sources and management must be consistent with the USDA's National Organic Program.
Areas contained within minimum application setbacks (e.g., sinkholes, wellheads, gullies, ditches, or surface inlets) must receive nutrients consistent with the setback restrictions listed in the Utah Manure Application Risk Index.
Applications of irrigation water must minimize the risk of nutrient loss to surface and groundwater.
Soil pH must be maintained in a range that enhances an adequate level for crop nutrient availability and utilization. Refer to Utah Fertilizer Guide: http://extension.usu.edu/files/publications/publication/AG_431.pdf**Soil, Manure, and Tissue Sampling and Laboratory Analyses (Testing).**
Nutrient planning must be based on current soil, manure, and (where used as supplemental information) tissue test results developed in accordance with Utah State University guidance, or industry practice.(reference material – list here
Current soil tests are those that are no older than one year for annual crops or 3 years for perennial crops, The area represented by a soil test must be that acreage recommended by Utah State University.
Where a conservation management unit (CMU) is used as the basis for a sampling unit, all acreage in the CMU must have similar soil type, cropping history, and management The soil and tissue tests must include analyses pertinent to monitoring or amending the annual nutrient budget, e.g., pH, electrical conductivity (EC) and sodicity where salts are a concern, soil

organic matter, phosphorus, potassium, or other nutrients and test for nitrogen where applicable.
Guidelines from the Utah Fertilizer Guide will be used for sampling http://extension.usu.edu/files/publications/publication/AG_431.pdf.
Soil test analyses must be performed by laboratories successfully meeting the requirements and performance standards of the North American Proficiency Testing Program-Performance Assessment Program (NAPT-PAP) under the auspices of the Soil Science Society of America (SSSA) and NRCS, or other NRCS-approved program that considers laboratory performance and proficiency to assure accuracy of soil test results NAPT can be found here:
http://www.naptprogram.org/about/participants
Nutrient values of manure, organic by-products and biosolids must be determined prior to land application.
Manure analyses must include, at minimum, total nitrogen (N), ammonium N, total phosphorus (P) or P_2O_5, total potassium (K) or K_2O, and percent solids, or Utah State University guidance regarding required analyses.
Manure, organic by-products, and biosolids samples must be collected and analyzed at least annually, or more frequently if needed to account for operational changes (feed management, animal type, manure handling strategy, etc.) impacting manure nutrient concentrations. If no operational changes occur, less frequent manure testing is allowable where operations can document a stable level of nutrient concentrations for the preceding three consecutive years, unless federal, State, or local regulations require more frequent testing.
Samples must be collected, prepared, stored, and shipped, following Utah State University guidance or industry practice.
When planning for new or modified livestock operations, acceptable "book values" recognized by the NRCS (e.g., NRCS Agricultural Waste Management Field Handbook) and Utah State University, or analyses from similar operations in the geographical area, may be used if they accurately estimate nutrient output from the proposed operation.

Manure testing analyses must be performed by laboratories successfully meeting the requirements and performance standards of the Manure Testing Laboratory Certification program (MTLCP) under the auspices of the Minnesota Department of Agriculture, http://www2.mda.state.mn.us/webapp/lis/manurelabs.jsp
or other NRCS- approved program that considers laboratory performance and proficiency to assure accurate manure test results.

Nutrient Application Rates.

Planned nutrient application rates for nitrogen, phosphorus, and potassium must not exceed Utah State University guidelines or industry practice when recognized by the university.

At a minimum, determination of rate must be based on crop/cropping sequence, current soil test results, realistic yield goals, and NRCS- approved nutrient risk assessments.

If the land-grant university does not provide specific guidance that meets these criteria, application rates must be based on plans that consider realistic yield goals and associated plant nutrient uptake rates.

Realistic yield goals must be established based on historical yield data, soil productivity information, climatic conditions, nutrient test results, level of management, and local research results considering comparable production conditions.

Estimates of yield response must consider factors such as poor soil quality, drainage, pH, salinity, etc., prior to assuming that nitrogen and/or phosphorus are deficient.

For new crops or varieties, industry- demonstrated yield, and nutrient utilization information may be used until Utah State University information is available.

Lower-than-recommended nutrient application rates are permissible if the grower's objectives are met.

Applications of biosolids, starter fertilizers, or pop-up fertilizers must be accounted for in the nutrient budget.

Nutrient Sources.

Nutrient sources utilized must be compatible with the application timing, tillage and planting system, soil properties, crop, crop rotation, soil organic content, and local climate to minimize risk to the environment.

Nutrient Application Timing and Placement.

Timing and placement of all nutrients must correspond as closely as practical with plant nutrient uptake (utilization by crops), and consider nutrient source, cropping system limitations, soil properties, weather conditions, drainage system, soil biology, and nutrient risk assessment results.

Nutrients must not be surface-applied if nutrient losses offsite are likely. This precludes spreading on:

- frozen and/or snow-covered soils, and
- when the top 2 inches of soil are saturated from rainfall or snow melt.

Exceptions for the above criteria can be made for surface-applied manure when the Utah Manure Application Risk Index is used and the risk is "Low". Additional Criteria to Minimize Agricultural Nonpoint Source Pollution of Surface and Groundwater

Planners must use the current Utah Manure Application Risk Index.

When there is a high risk of transport of nutrients, conservation practices must be coordinated to avoid, control, or trap manure and nutrients before they can leave the field by surface or subsurface drainage (e.g., tile). The number of applications and the application rates must also be considered to limit the transport of nutrients to tile drains.

Nutrients must be applied with the right placement, in the right amount, at the right time, and from the right source to minimize nutrient losses to surface and groundwater. The following nutrient use efficiency strategies or technologies must be considered:

- slow and controlled release fertilizers
- nitrification and urease inhibitors
- enhanced efficiency fertilizers
- incorporation or injection
- timing and number of applications
- soil nitrate and organic N testing
- coordinate nutrient applications with optimum crop nutrient uptake
- Corn Stalk Nitrate Test (CSNT), Pre-Side dress Nitrate Test (PSNT), and Pre-Plant Soil Nitrate Test (PPSN)

- tissue testing, chlorophyll meters, and spectral analysis technologies
- other land-grant university recommended technologies that improve nutrient use efficiency and minimize surface or groundwater resource concerns.

Additional Criteria Applicable to Properly Utilize Manure or Organic By-Products as a Plant Nutrient Source

When manures are applied, and soil salinity is a concern, salt concentrations must be monitored to prevent potential crop damage and/or reduced soil quality.
The total single application of liquid manure:

- must not exceed the soil's infiltration or water holding capacity
- be based on crop rooting depth
- must be adjusted to avoid runoff or loss to subsurface tile drains.

Crop production activities and nutrient use efficiency technologies must be coordinated to take advantage of mineralized plant-available nitrogen to minimize the potential for nitrogen losses due to denitrification or ammonia volatilization. Nitrogen and phosphorus application rates must be planned based on risk assessment results as determined by the Utah Manure Application Risk Index.

- Manure or organic by-products may be applied on legumes at rates equal to the estimated removal of nitrogen in harvested plant biomass, not to exceed Utah State University recommendations.

Manure may be applied at a rate equal to the recommended phosphorus application, or estimated phosphorus removal in harvested plant biomass for the crop rotation, or multiple years in the crop sequence at one time. When such applications are made, the application rate must not exceed the acceptable phosphorus risk assessment criteria, must not exceed the recommended nitrogen application rate during the year of application or harvest cycle, and no additional phosphorus must be applied in the current year and any additional years for which the single application of phosphorus is supplying nutrients.

Additional Criteria to Protect Air Quality by Reducing Odors, Nitrogen Emissions and the Formation of Atmospheric Particulates

To address air quality concerns caused by odor, nitrogen, sulfur, and/or particulate emissions; the source, timing, amount, and placement of nutrients must be adjusted to minimize the negative impact of these emissions on the environment and human health. One or more of the following may be used:

- slow or controlled release fertilizers
- nitrification inhibitors
- urease inhibitors
- nutrient enhancement technologies
- incorporation
- injection
- stabilized nitrogen fertilizers
- residue and tillage management
- no-till or strip-till
- other technologies that minimize the impact of these emissions

Do not apply poultry litter, manure, or organic by-products of similar dryness/density when there is a high probability that wind will blow the material offsite.

Additional Criteria to Improve or Maintain the Physical, Chemical, and Biological Condition of the Soil to Enhance Soil Quality for Crop Production and Environmental Protection

Time the application of nutrients to avoid periods when field activities will result in soil compaction.
In areas where salinity is a concern, select nutrient sources that minimize the buildup of soil salts.

CONSIDERATIONS

Elevated soil test phosphorus levels are detrimental to soil biota. Soil test phosphorus levels should not exceed State-approved soil test thresholds established to protect the environment.
Use no-till/strip-till in combination with cover crops to sequester nutrients, increase soil organic matter, increase aggregate stability, reduce compaction, improve infiltration, and enhance soil biological activity to improve nutrient use efficiency.
Use nutrient management strategies such as cover crops, crop rotations, and crop rotations with perennials to improve nutrient cycling and reduce energy inputs.
Use variable-rate nitrogen application based on expected crop yields, soil variability, soil nitrate or organic N supply levels, or chlorophyll concentration.
Use variable-rate nitrogen, phosphorus, and potassium application rates based on site-specific variability in crop yield, soil characteristics, soil test values, and other soil productivity factors.
Develop site-specific yield maps using a yield monitoring system. Use the data to further diagnose low- and high- yield areas, or zones, and make the necessary management changes. See Title 190, Agronomy Technical Note (TN) 190.AGR.3, Precision Nutrient Management Planning.
Use manure management conservation practices to manage manure nutrients to limit losses prior to nutrient utilization.
Apply manure at a rate that will result in an "improving" Soil Conditioning Index (SCI) without exceeding acceptable risk of nitrogen or phosphorus loss.
Use legume crops and cover crops to provide nitrogen through biological fixation and nutrient recycling.
Modify animal feed diets to reduce the nutrient content of manure following guidance contained in Conservation Practice Standard (CPS) Code 592, Feed Management.
Soil test information should be no older than 1 year when developing new plans.
Excessive levels of some nutrients can cause induced deficiencies of other nutrients, e.g., high soil test phosphorus levels can result in zinc deficiency in corn.
Use soil tests, plant tissue analyses, and field observations to check for secondary plant nutrient deficiencies or toxicity that may impact plant growth or availability of the primary nutrients.
Use the adaptive nutrient management learning process to improve nutrient use efficiency on farms as outlined in the NRCS' National Nutrient Policy in GM 190, Part 402, Nutrient Management.
Potassium should not be applied in situations where an excess (greater than soil test potassium recommendation) causes nutrient imbalances in crops or forages.
Workers should be protected from and avoid unnecessary contact with plant nutrient sources. Extra caution must be taken when handling anhydrous ammonia or when dealing with organic wastes stored in unventilated enclosures.
Material generated from cleaning nutrient application equipment should be utilized in an environmentally safe manner.
Excess material should be collected and stored or field applied in an appropriate manner.
Nutrient containers should be recycled in compliance with State and local guidelines or regulations.

Considerations to Minimize Agricultural Nonpoint Source Pollution of Surface and Groundwater.

Use conservation practices that slow runoff, reduce erosion, and increase infiltration, e.g., filter strip, contour farming, or contour buffer strips. These practices can also reduce the loss of nitrates or soluble phosphorus.
Use application methods and timing strategies that reduce the risk of nutrient transport by ground and surface waters, such as:

- split applications of nitrogen to deliver nutrients during periods of maximum crop utilization,
- banded applications of nitrogen and/or phosphorus to improve nutrient availability,
- drainage water management to reduce nutrient discharge through drainage systems, and
- incorporation of surface-applied manures or organic by-products if precipitation capable of producing runoff or erosion is forecast within the time of planned application.

Use the agricultural chemical storage facility conservation practice to protect air, soil, and water quality.
Use bioreactors and multistage drainage strategies when approved by Utah State University.

Considerations to Protect Air Quality by Reducing Nitrogen and/or Particulate Emissions to the Atmosphere.

Avoid applying manure and other by-products upwind of inhabited areas.
Use high-efficiency irrigation technologies (e.g., reduced-pressure drop nozzles for center pivots) to reduce the potential for nutrient losses.

PLANS AND SPECIFICATIONS

The following components must be included in the nutrient management plan:

- aerial site photograph(s)/imagery or site map(s), and a soil survey map of the site,
- soil information including: soil type surface texture, pH, drainage class, permeability, available water capacity, depth to water table, restrictive features, and flooding and/or ponding frequency,
- location of designated sensitive areas and the associated nutrient application restrictions and setbacks,
- for manure applications, location of nearby residences, or other locations where humans may be present on a regular basis, and any identified meteorological (e.g., prevailing winds at different times of the year), or topographical influences that may affect the transport of odors to those locations,
- results of approved risk assessment tools for nitrogen, phosphorus, and erosion losses,
- documentation establishing that the application site presents low risk for phosphorus transport to local water when phosphorus is applied in excess of crop requirement.
- current and/or planned plant production sequence or crop rotation,
- soil, water, compost, manure, organic by-product, and plant tissue sample analyses applicable to the plan,
- when soil phosphorus levels are increasing, include a discussion of the risk associated with phosphorus accumulation and a proposed phosphorus draw-down strategy,
- realistic yield goals for the crops,
- complete nutrient budget for nitrogen, phosphorus, and potassium for the plant production sequence or crop rotation,
- listing and quantification of all nutrient sources and form,
- all enhanced efficiency fertilizer products that are planned for use,
- in accordance with the nitrogen and phosphorus risk assessment tool(s), specify the recommended nutrient application source, timing, amount (except for precision/variable rate applications specify method used to determine rate), and placement of plant nutrients for each field or management unit, and
- guidance for implementation, operation and maintenance, and recordkeeping.

In addition, the following components must be included in a precision/variable rate nutrient management plan:

- Document the geo-referenced field boundary and data collected that was processed and analyzed as a GIS layer or layers to generate nutrient or soil amendment recommendations.
- Document the nutrient recommendation guidance and recommendation equations used to convert the GIS base data layer or layers to a nutrient source material recommendation GIS layer or layers.
- Document if a variable rate nutrient or soil amendment application was made.
- Provide application records per management zone or as applied map within individual field boundaries (or electronic records) documenting source, timing, method, and rate of all applications that resulted from use of the precision agriculture process for nutrient or soil amendment applications.
- Maintain the electronic records of the GIS data layers and nutrient applications for at least 5 years.

If increases in soil phosphorus levels are expected (i.e., when N-based rates are used), the nutrient management plan must document:

- the soil phosphorus levels at which it is desirable to convert to phosphorus based planning,
- the potential plan for soil test phosphorus drawdown from the production and harvesting of crops, and

- management activities or techniques used to reduce the potential for phosphorus transport and loss,
- for AFOs, a quantification of manure produced in excess of crop nutrient requirements, and
- a long-term strategy and proposed implementation timeline for reducing soil P to levels that protect water quality,

CERTIFICATION REQUIREMENTS

The data listed below is necessary at a minimum to document that the completed practice meets the standard and specification:

1. How the producer has adopted the management and mitigating practices listed on the UMARI
2. Nutrient application records that show nutrients were applied according to the soil test and/or plant tissue test
3. Soil test and other test results (i.e. plant tissue test, manure test), where appropriate
4. Crop(s) grown and yield records
5. Timing and method of application
6. Map indicating acres treated

OPERATION AND MAINTENANCE

Conduct periodic plan reviews to determine if adjustments or modifications to the plan are needed. At a minimum, plans must be reviewed and revised, as needed with each soil test cycle, changes in manure volume or analysis, crops, or crop management.
Fields receiving animal manures and/or biosolids must be monitored for the accumulation of heavy metals and phosphorus in accordance with land- grant university guidance and State law.
Significant changes in animal numbers, management, and feed management will necessitate additional manure analyses to establish a revised average nutrient content.
Calibrate application equipment to ensure accurate distribution of material at planned rates.
Document the nutrient application rate. When the applied rate differs from the planned rate, provide appropriate documentation for the change.
Records must be maintained for at least 5 years to document plan implementation and maintenance. As applicable, records include:

- soil, plant tissue, water, manure, and organic by-product analyses resulting in recommendations for nutrient application,
- quantities, analyses and sources of nutrients applied,
- dates, and method(s) of nutrient applications, source of nutrients, and rates of application,
- weather conditions and soil moisture at the time of application; lapsed time to manure incorporation; rainfall or irrigation event,
- crops planted, planting and harvest dates, yields, nutrient analyses of harvested biomass, and crop residues removed,
- dates of plan review, name of reviewer, and recommended changes resulting from the review, and
- all enhanced efficiency fertilizer products used.

Additional records for precision/variable rate sites must include:

- maps identifying the variable application source, timing, amount, and placement of all plant nutrients applied, and
- GPS-based yield maps for crops where yields can be digitally collected.

REFERENCES

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Schepers, J.S., and W.R. Ruan, (eds.) 2008. Nitrogen in agricultural systems. Agron. Monogr. no. 49, American Society of Agronomy (ASA), Crop Science Society of America (CSSA), Soil Science Society of America (SSSA). Madison, WI.

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Stevenson, F.J. (ed.) 1982. Nitrogen in agricultural soils. Agron. Series 22. ASA, CSSA, and SSSA, Madison, WI.

U.S. Department of Agriculture, Natural Resources Conservation Service. 2010. Agronomy Technical Note, (TN) 190-AGR-3, Precision Nutrient Management Planning. Washington, DC.

U.S. Department of Agriculture, Natural Resources Conservation Service. 2011. Title 190, General Manual, (GM), Part 402, Nutrient Management. Washington, DC.

U.S. Department of Agriculture, Natural Resources Conservation Service. 2011, Title 190, National Instruction (NI), Part 302, Nutrient Management Policy Implementation. Washington, DC.

NATURAL RESOURCES CONSERVATION SERVICE CONSERVATION PRACTICE

STANDARD

WASTE FACILITY CLOSURE

(No.) CODE 360

DEFINITION

The decommissioning of facilities, and/or the rehabilitation of contaminated soil, in an environmentally safe manner, where agricultural waste has been handled, treated, and/or stored and is no longer used for the intended purpose.

PURPOSE

- Protect the quality of surface water and groundwater resources.
- Mitigate air emissions.
- Eliminate a safety hazard for humans and livestock.
- Safeguard the public health.

CONDITIONS WHERE PRACTICE APPLIES

This practice applies to agricultural waste facilities or livestock production sites that are no longer needed as a part of a waste management system and are to be permanently closed or converted for another use. These facilities include

liquid/dry waste storage facilities, confined animal housing, feedlots, livestock yards, or composting facilities.

This practice applies where impoundments that are to be converted to fresh water storage meet current NRCS standards.

Where structures that include agricultural waste storage, such as confined animal housing, are to be decommissioned, this practice will apply to the removal of the waste and rehabilitation of soil within the facility.

This practice applies to remediation of soil contaminated by agricultural wastes that have been stored on-site.

It does not apply to sites contaminated by materials that require the issuance of a

hazardous waste permit, such as fuel or pesticides.

CRITERIA

General Criteria Applicable to All Purposes

The closure shall comply with all Federal, State, and local laws, rules, and regulations including national pollutant discharge elimination system (NPDES) requirements.

Existing waste transfer components that convey to waste facilities or provide drainage from the facility area shall be removed and replaced with compacted earth material or otherwise rendered unable to convey waste.

Remove manure, agricultural waste, and contaminated soil to the maximum extent practicable. All manure and agricultural waste that could negatively impact water and/or air quality or pose a safety hazard shall be removed as deemed practicable. All liquid, slurry, sludge, and solid waste, and soil removed from the facility shall be utilized in accordance with NRCS Conservation Practice Standards, Nutrient Management, Code 590 and/or Waste Utilization, Code 633.

Precautions (fencing and warning signs) shall be used where necessary to ensure that the facility is not used for purposes incompatible with the facility modification.

Erosion and Pollution Control. All disturbed areas shall be re-vegetated or treated with other suitable measures used to control erosion and restore the aesthetic value of the site. Sites, not suitable for re-vegetation through normal cropping practices, shall be vegetated in accordance with NRCS Conservation Practice Standard, Critical Area Planting, Code 342.

Liquid and Slurry Waste Removal. Liquid and slurry wastes shall be agitated and pumped to

the maximum extent

practicable. Water shall be added as necessary to facilitate the agitation and pumping. The wastewater shall be utilized in accordance with NRCS Conservation Practice Standard, Nutrient Management, Code 590 and/or Waste Utilization, Code 633.

Sludge Removal. During sludge removal operations, the integrity of the liner, if one is present, shall be maintained. Sludge shall be removed to the maximum extent practicable and utilized in accordance with NRCS Conservation Practice Standard, Nutrient Management, Code 590 and/or Waste Utilization, Code 633.

Impoundment Closure. Three options are associated with the decommissioning of liquid waste impoundments. One of the following will be used.

1. Embankment Impoundments (those with a depth of water at the design water level of three feet or more above natural ground) may be breached so that they no longer impound water. The embankment material can then be graded into the impoundment area, and the area vegetated for another use. Or the embankment may remain if the impoundment area surface has been sufficiently cleaned so that runoff leaving the site would not be considered as contaminated by the wastes.
2. Excavated Impoundments may be backfilled so that these areas may be reclaimed for other uses.
3. Impoundments may be converted to fresh water storage.

Embankment Impoundments. Waste and sludge shall be removed from the impoundment before the embankment is breached. Concrete and flexible membrane liners shall be removed or rendered unable to impound water and properly disposed of. The slopes and bottom of the breach shall be stable for the soil material

involved, however the side slopes shall be no steeper than three horizontal to one vertical (3:1).

Excavated Impoundments. Concrete and flexible membrane liners shall be removed or rendered unable to impound water and properly disposed of. The backfill height shall exceed the height to the design finished grade by a minimum of 5 percent to allow for settlement. The top one foot of the backfill shall be constructed of the most impervious soil material readily available and mounded to shed rainfall runoff. Incorporate available topsoil where feasible to aid establishment of vegetation.

Conversion to Fresh Water Storage. The converted impoundment shall meet the requirements as set forth in the appropriate NRCS practice standard for the intended purpose. Where the original impoundment was not constructed to meet NRCS standards, the investigation for structural integrity shall be in accordance with National Engineering Manual (NEM) 501.23. When it is not practical to remove the sludge from a waste impoundment that is being converted to fresh water storage, the impoundment shall not be used for fish production, swimming, or livestock watering until the water quality is adequate for these purposes.

Fabricated Liquid Waste Facilities. If fabricated structures are to be demolished, disassembled or otherwise altered, it shall be done to such an extent that no water can be impounded. Disassembled materials such as pieces of metal shall be temporarily stored in such a manner that they do not pose a hazard to animals or humans until their final disposition.

Demolished materials shall be buried on-site or moved off-site to locations designated by state or local officials. If buried on-site, the materials are to be covered with soil to a settled depth of at least one foot. The backfill height shall exceed the height to the design finished grade by a minimum of 5 percent to allow for settlement, and the backfill be sufficiently mounded such that runoff will be diverted from the site after the backfill settles.

Dry Waste Storage or Treatment Facilities. The soil at dry waste facilities such as confined animal housing, feedlots, livestock yards, or composting facilities with earthen floors must be evaluated.

The evaluation shall include laboratory analyses of the soil profile for any nutrients for which specific information is needed to determine the required depth of rehabilitation. Soil samples shall be taken at multiple locations and depths within the facility. One sample per depth interval per acre of the area being decommissioned with a minimum of 3 samples per depth interval shall be taken. Samples taken for each specified sampling depth interval may be consolidated

into a single set (e.g., 3 samples taken at the 0 to 6 inch depth interval may be consolidated into

a single sample for testing). The samples shall be collected, prepared and tested in accordance with NRCS Conservation Practice Standard, Nutrient Management, Code 590.

The results of the soil analysis will be used to prepare a plan to recover the site for its intended use. The following site appropriate options shall be utilized, if needed:

- Adjust pH to restore desired crop growing conditions
- Plant salt tolerant plants to restore the site to desired crop conditions. The harvested vegetation quality should be monitored for N, P, and K removal.
- Select plants and erosion control practices to minimize phosphorus transport from the site and facilitate remediation of excessively high phosphorus levels.

Although in-situ processes are the preferred method for adjusting the soil conditions, removal of a portion of the soil may be necessary. The removed soil shall be land applied in accordance with NRCS Conservation Practice Standard, Nutrient Management, Code 590 and/or Waste Utilization, Code 633. Excavated areas shall be graded and or backfilled to shed rainfall and prevent ponding of runoff. Where feasible, available topsoil should be used to aid the establishment of permanent vegetation.

CONSIDERATIONS

Conduct pre-closure soil and water (surface and subsurface) testing to establish base line data surrounding the site at the time of closure.
Establishing baseline data can be used in the future to address soil and water issues.

Where the surface is covered by a dense mat of floating vegetation, pumping effort to empty waste impoundments may be reduced by first applying herbicide to the vegetation and then burning the residue. Appropriate permits must be obtained before burning. When burning is conducted, take necessary actions to ensure that smoke is managed to minimize impacts to downwind populations.

Alternative methods of sludge removal may be required where the impoundments contain large amounts of bedding, oyster shells, soil, or other debris.

Minimize the impact of odors associated with land applying dry wastes and with agitation,

emptying, and land applying wastewater and sludge from a waste impoundment by conducting these operations at a time when the humidity is low, when winds are calm, and when wind direction is away from populated areas.
Adding chemical and biological additives to the waste prior to agitation and emptying can reduce odors. Odor impacts from land application can also be mitigated by using an incorporation application method.

Minimize agitation of the wastes to only the amount needed for pumping to reduce the potential for release of air emissions.

Soil to fill excavated areas should not come from important farmlands (prime, statewide, local, and/or unique).

Waste facility closure may improve utilization and aesthetics of the farmstead.

Breached embankments may detract from the overall aesthetics of the operation.
Embankments should be removed and the site returned to its original grade.

Disassembled fabricated structures may be suitable for assembly at another site. Care should be taken during closure to minimize damage to the pieces of the facility, particularly coatings that prevent corrosion of metal pieces.

Measures should be taken during contractor's activities to minimize site erosion and pollution of downstream water resources. This may include such items as silt fences, hay bale barriers, temporary vegetation, and mulching.

To minimize potential impacts to livestock, such as nitrate poisoning, initiate a testing and monitoring program of nutrient levels in crop products, particularly livestock feeds, harvested from sites of closed animal confinement facilities.

PLANS AND SPECIFICATIONS

Plans and specifications for the decommissioning of abandoned waste facilities and the rehabilitation of contaminated soil shall be in keeping with this standard and shall describe the requirements for applying the practice to achieve its intended purpose. At a minimum, include the following:

1. A plan view showing the location and extent of the practice.

RECEIVED
JUL 03 2017
Division of Water Quality

NOTICE OF INTENT
Utah Pollutant Discharge Elimination System,
Concentrated Animal Feeding Operation (CAFO) General Permit,
Permit Number UTG08000

Submission of this Notice of Intent (NOI) with a complete NRCS certified planner approved Nutrient Management Plan (NMP) constitutes application for coverage under this CAFO General Permit. The NOI and NMP must be approved by the Utah Division of Water Quality for permit coverage to be granted under the general permit. Once permit coverage is granted, the permittee is obligated to comply with the requirements and conditions of the permit.

Required NOI Content (Attach additional pages if needed)	*(Division Use Only)* *Assigned CAFO General Permit Number:*
1. Name(s) of responsible owners and operators.	1. Kris D. Miller 2. Rod Garner
2. Two contact phone numbers, if available.	1. 2.
3. Facility name.	Miller Brothers Express, LLC.
4. Type of facility (dairy, beef feedlot, etc.).	Beef
5. Facility physical address.	Street Address: 560 West 400 North Town/City, State, Zip: Hyrum, Utah 84319 Other location: (milepost, etc) County: Cache
6. Mailing address.	Street Address, PO Box, other: SAME Town/City, State, Zip:
7. Email address *(optional)*:	1. KMILLER@MBEXLC.COM 2. RGARNER@MBEXLC.COM
8. Latitude and longitude of production area or on-site office.	Location of lat/long (office or production area): Latitude North: 41 38' 41.12 N Longitude West: 111d 52' 28.83 W
9. Attach with the NOI, a topographic map of the geographic area in which the CAFO is located showing the specific location of the production area and any nearby surface waters of the state.	
10. The name and location of the nearest surface water. Describe any conveyances to any surface waters of the State (washes, ditches, canals, pipes, culverts, etc.).	Name of nearest surface water: Spring Creek Location of surface water from production area: North of Feedlot & Farm Conveyances to surface water: Blocked by dikes on edge of field

11. Type of animals (cows, calves, pullets, layers, swine over 55 pounds, swine under 55 pounds, etc.), and average weight of each type.	Type of Animal	Average Weight
	1. Beef	500 lbs.
	2.	
	3.	
	4.	
	5.	

12. Number of animals for each type, and type of containment (housed, open lot, barn, etc.).	Number of Animals for Each Type	Containment Type
	1. 1,200	Open Lot
	2.	Cement Corralls
	3.	
	4.	
	5.	

13. Type and number of solid and liquid waste retention, treatment, containment, and storage (anaerobic lagoon, evaporation pond, underfloor pit, concrete pad, storage shed, aerobic pond, manure pit, tailwater pond, concrete bunker, tanks, solid separator, runoff pond, bermed compost area, in-corral composting, etc.). Storage Capacity for manure, litter, compost, and process wastewater (tons, gallons, etc.) of each structure.	Type	Number	Storage Capacity
	1. Pens	32	3,500 Tons
	2. Commerical Composting	1	7,637 Tons
	3. West End Pond	1	320,000 Gals
	4. Evaportation Pond	1	4,372,730 Gals
	5. South Pond	1	829,719 Gals
	6. Middle Pond	1	2,371,001 Gals
	7. North Pond	1	1,055,914 Gals
	8.		
	9.		
	10.		
14. Total number of acres under control of the applicant available for land application of manure, litter, compost, process wastewater.	Number of acres for land application: 910		
15. Estimated amounts of manure, litter, compost, and process wastewater generated per year (tons, gallons, etc.).	Amount of manure generated: 354,379 Cubic Feet		
	Amount of litter generated:		
	Amount of compost generated:		
	Amount of process wastewater generated: 2,158,830 Gals Page 12 MMP		
16. Estimated amounts of manure, litter, compost, and process wastewater transferred or sold to other persons per year (tons, gallons, etc.).	Amount of manure transferred or sold:		
	Amount of litter transferred or sold:		
	Amount of compost transferred or sold:		
	Amount of process wastewater transferred or sold:		

Certified Planner Signature

I certify that I am a Natural Resources Conservation Service (NRCS) approved certified planner qualified to review and approve nutrient management plans (NMPs) for compliance with NRCS NMP planning practices and NRCS standard practices. I certify that the NMP developed for the facility submitting this NOI for permit coverage complies with Parts VII, VIII, IX, XI, and XII of the CAFO permit and all applicable NRCS practice standards, including Practice 590 and UMARI. The NMP, if fully implemented, will be in accordance with all NMP permit requirements and all applicable NRCS practice standards for the facility.

I approve the nutrient management plan for the facility seeking permit coverage under this NOI.

Signature	Date	Print Name
	6-28-2017	Howard R. Thomas

Applicant Signature

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment for knowing violations.

Signature	Date	Print Name
	6-28-2017	Kris D. Miller

State of Utah
GARY R. HERBERT
Governor

SPENCER J. COX
Lieutenant Governor

Department of
Environmental Quality

Alan Matheson
Executive Director

DIVISION OF WATER QUALITY
Erica Brown Gaddis, PhD
Director

January 26, 2018

The Herald Journal
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This letter will confirm authorization to publish the attached NOTICE in The Herald Journal in the first available edition. Please mail the invoice and affidavit of publication to:

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Division of Water Quality
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P.O. Box 144870
Salt Lake City, Utah 84114-4870

If there are any questions, please contact Monique Bridges at (801) 536-4319. Thank you for your assistance.

Sincerely,

Jeanne Riley, Manager
UPDES Storm Water Section

JR/DH/blj

DWQ-2018-000669